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Lobeline Possibilities

The child is frightened most by the unknown, the terror that springs out of the darkness, while, however real any threatening danger may be, it excites less apprehension if it is seen and comprehended. One is reminded of this when he hears men speak of the dangerous character of certain drugs. When we do hear such a pronouncement, we know the speaker never made use of the remedy that he denounces. Singularly enough, the drugs most generally shunned as dangerous are those that, in all the materia medica, are safest, in that their action ensures their own elimination from the body. Thus, while a single dose of digitalis has killed a man, because the drug shut up the terminal renal arterioles and in that way prevented its own escape from the body, aconite, veratrum and lobelia—the dreaded and proscribed—are among the drugs that relax vascular tension and thus allow a free flow of blood to the emunctory apparatus.

Lobelia is a drug dreaded by those who have not learned to know it by practical application, while, on the other hand, it is trusted to a remarkable degree and utilized in a very wide range of cases by those practitioners to whom it has become familiar through actual use. To the Thomsonian, it was a right bower; but, by the same token, it was anathema to his opponents. The amazing results of the modern trials of emetine, after four centuries' common use of the parent plant, lead us to inquire as to what possibly we may find of value in the allied alkaloid present in lobelia inflata.

Lobeline, the liquid alkaloid of lobelia, was discovered by Proctor. Later, Endros found in this plant another principle, which he named lobelacrin. It is to this latter principle that the great Italian pediatrist Laura attributed the irritant effects of the plant, as well as the circulatory and respiratory disturbances and the general depression following maximum doses of it. Lloyd asserts that lobelia is so rapid in its emetic action that poisoning by it is impossible. Cushny says that lobeline increases reflex excitability, hastens the respiration by stimulating the spinal and medullary centers, and causes the breathing to become deeper and stronger. The blood pressure at first falls, but soon rises above normal. The saliva, bronchial mucus, perspiration, and the secretions of the entire alimentary canal are increased. The older writers found that it acted as a vital incitant and that its use was followed by a remarkable sense of extreme satisfaction and repose—of euphoria. The mental powers were unusually active and the sense of wellbeing

even was compared with that following morphine. We now attribute this condition to the elimination of hemic toxins, and recognize it as similar to the euphoria following the action of any cholagog cathartic, but, by the administration of lobeline in minute doses, repeated to a point short of nausea, we secure the same sensation of comfort without inducing active catharsis.

The list of diseases for which lobelia has been recommended is a long one, still, its true place in therapeutics may be stated in few words. Lobelia relaxes spasm and vascular tension, and it increases all the secretions and excretions. As an antispasmodic, it has proved effective in eclampsia, chorea, epilepsy, and even in tetanus—the beneficial effects depending upon its eliminative powers. Asthma, whooping-cough, and the spasmodic forms of chronic bronchial catarrhs are speedily quelled by a sufficiency of lobeline. In acute bronchitis, it hastens the stages by inciting free secretion. Ruatta urged its use, as a relaxant in strangulated hernia. E. Cornet praised lobeline in the spasmodic cough of phthisis, and found its effects "almost magical" in the various forms of croup. As an ingredient of laxative combinations, lobeline is advisable whenever costiveness is present.

Quite recently, Edmunds showed that lobeline acts most powerfully upon the renal, vagus, and superior cervical ganglia, its action upon the inferior and mesenteric ganglia being deferred and incomplete. He found it impossible to stop the heart with muscarine after an injection of lobeline; he noted also that the latter would start the heart after it had been stopped by muscarine. Lobeline should prove useful in poisoning by the fly-amanita, although not by the phalloid variety.

In treating animals, Browne (CLINICAL MEDICINE, August, p. 678) found that lobeline is almost indispensable in the tetanus and azoturia of horses. It should prove of great value as a nonnarcotic sedative for the colic or hyperemia caused by renal calculi. It should also be given a trial in spasmodic asthma, spasmodic laryngitis, whooping-cough, hysteria, hysterical convulsions, and eclampsia.

In azoturia in horses, when the animal was almost uncontrollable, Browne found that 1-10 grain of lobeline sulphate rendered the animal perfectly tractable and apparently free from pain.

In emphysema or heaves of horses, injections of lobeline had no apparent effect. Doctor Browne found the respiration greatly increased in rapidity, but observations here were interrupted by vomiting and defecation in from one to two minutes after the injection. The horse's heart, after a preliminary quickening, was slightly slowed, the pulse being full, soft, and regular. Of a total of 36 animals injected, all vomited and all but 4 defecated. No animal showed any depressant or narcotic effect.

A 10-pound dog was not adversely affected by the injection of 1-2 grain of lobeline, and the observer gave up expectations of recording any toxic effects. Salivation was evidenced in the majority of the animals and secretions were stimulated throughout the body.

Lobeline is admirably suited for the intensive method of dosage. One-fourth of a milligram may be administered and repeated every five to thirty minutes until slight nausea indicates the supervention of beginning toxic action. This is absolutely safe, and effective whenever the antispasmodic or relaxant, or the secretion-incitant effects are desired. In eclampsia much larger doses are employed, and the remedy is pushed to full relaxation. A milligram may be added to each dose of a laxative pill, to overcome dryness of the fecal mass. Even to very young infants this "dangerous medicine" has been given as a laxative with the best results.

Lobeline is liked best by those who have employed it most. That there are certain specific virtues in it is their firm belief; and it would be no surprise were it to rival or exceed emetine when modern methods of study and experiment have been applied to it.

Difficult questions are not solved by men but by events.

THE NEW ANTISEPTIC

It is unusual for us to refer to a proprietary preparation in the editorial pages of CLINICAL MEDICINE. When we vary from this custom, it is because we believe it our duty to bring to the attention of our readers some product of a very unusual character. This is our explanation for now speaking of chlorazene, the new synthetic antiseptic, in three successive issues of this journal.

For many years the profession has been searching for an antiseptic that at the same time would be highly germicidal and harmless, or at least relatively harmless, to the tissues and to the individual. Chlorazene seems to meet these conditions more nearly than any

antiseptic heretofore introduced. We use the expression "seems to," well knowing, of course, that the exact field and exact indications and possible disadvantages as well as the exact advantages of this synthetic salt can be fully determined only after extended clinical trial. At this moment, we only can say that the reports thus far received bear out the claims made for this substance by Dakin in his interesting paper published in *The British Medical Journal* for January 29 of this year.

This work of Dakin is all the more interesting and, in our opinion, more to be depended upon, because it is disinterested on his part. We are in a position to say that these investigations were carried on and the product put on the market without any expectation of gain. So far as Doctor Dakin is concerned, his study of antiseptics has not been a money-making venture, nor was it expected or desired by him that it should be. The opinions which he has expressed, therefore, with regard to the virtues of this antiseptic, have not been colored by the hope of gain. We make this statement, because it is right that the profession should know the exact attitude of Doctor Dakin and the thoroughly disinterested character of his investigations.

This attitude of Doctor Dakin in this matter has served to increase our own confidence in the value of this antiseptic, which again we wish to commend to the medical profession for careful clinical test in all sorts of conditions where antiseptics are indicated. Reports of experience with it are invited from the readers of CLINICAL MEDICINE, for publication in these pages.

The reason a man has a lot more temptations than a woman is because he knows just where to look for them.—Chicago Tribune.

THE VACCINE-TREATMENT OF INFECTIOUS DISEASES

Some years ago, a Hollandish scientist declared that the study of tuberculosis has entered the phase of immunization. Sir Almroth Wright asserted that the physician of the future will be an immunizator. Indeed, the vaccine-treatment of bacterial diseases has become extremely popular. Some physicians call it a passing fad, others say that it has become a fetish.

In discussing the specific, that is, the directly antagonistic, antibacterial treatment of germ-diseases, we refer complacently to the "modern" treatment, forgetting or neglecting to state that the principle upon which this definite form of therapy rests has been employed by homeopathic physicians for many years and that priority of its application undoubtedly belongs to them. Indeed, the underlying principle is so manifestly in conformity with the "law of similars" that vaccine-therapy may, in a way, be taken as a vindication of Hahnemann's contention. As a matter of fact, claims to this effect are not infrequently being advanced in homeopathic journals, and it would be both undignified and incompatible with a true scientific spirit to do less than give honor where honor is due.

While we are firmly convinced of the great importance and value of the vaccine treatment in diseases owing to bacterial invasion and activity and even are enthusiastic in its support, we, nevertheless, are far from adding or suggesting that it is the be-all and end-all of treatment. As a matter of fact, it would be a grave mistake to limit the treatment of a patient suffering from typhoid fever, for instance, to the injection of a vaccine or bacterin containing so and so many killed organisms, or to dismiss a tuberculous patient after merely injecting a dose of tubercle bacillus emulsion, and expect both these patients to recover forthwith.

That sort of treatment may be expected to work, perhaps, before the disease actually exists, that is to say, before the infecting organisms have succeeded in producing pathological changes in the tissues of the body—before, in fact, the infected person has become ill. But after the bacterial disease has declared itself, the problem confronting the physician has become complicated; and no longer can be solved, but only aided, by the simple injection of a bacterial preparation, no matter how "specific" it may be.

In a case of typhoid fever, for instance, in which the temperature has shown the characteristic ascending curve of the first week, it is too late for typhoid-bacterin to do good; it is necessary to apply systemic treatment; which means, to aim to remedy the pathological conditions in the intestinal tract, to render the buccal cavity and the entire digestive tube as free from pathogenic bacteria as it can be made, and to counteract the results of the existing bacteremia.

In addition to this general treatment thus briefly indicated, there may be various symptoms that require individual attention in order to promote the comfort of the patient. While we no longer consider it proper always to suppress forcibly and at all odds fever-temperature in the patient, it, still, is not advisable to permit the temperature reaction

to the infection to exceed a certain limit of safety, and it is well to take measures in this direction when this limit is exceeded.

Then, if constipation exists, we prescribe suitable remedies for its relief; or, if the opposite condition obtains, we take steps to remove the foul, fermenting, infected and toxic content of the intestinal tract, in order to prevent its absorption into the circulation. We also support the heart in its struggle and in the excessive strain under which it labors. We supply as much nourishment as can be assimilated. We attempt to promote the patient's comfort by sponging and other means as much as is in our power.

While, then, the vaccine treatment of bacterial diseases undoubtedly is an agent of great merit and potency, it will never do to limit the management of disease to it alone; but it is necessary to pay attention to the general hygiene of our patient just as much as has been the case in the past, and even more so.

If this point is considered in its full bearings and in all its possibilities, it will be seen that the "modern specific treatment" by means of bacterins or vaccins is not a shortcut and does not diminish the responsibility or the work of the physician. It is an extremely potent weapon, and all powerful agents must be handled with care and circumspection. The employment of biologic remedies demands a careful study of our patients and of all phases of the cases confronting us. It requires an exact diagnosis as also a full knowledge of all the resources of the patient that need stimulation and support in his struggle against disease.

But, bacteriotherapy has this advantage: it eliminates promptly, in successful cases, the leading factor of the infection and of the intoxication dependent upon it, leaving us to deal with the morbid tissue changes that have occurred in consequence of the bacterial activity. With the removal of the source of the disease, it is easier, usually, to deal with the disease itself.

"You can get closer to a man by asking a favor of him than you can by granting a favor."

MUSCARINE AND HEMOPTYSIS

Brunton affirms: "If the pulmonary capillaries are contracted, the left ventricle will receive little blood, and, so, will send little blood into the arteries, although the right ventricle may be much distended. This appears to occur during poisoning with muscarine, which causes the lungs to become blanched, the right ventricle distended, and the left ventricle and the arterial system empty; so that little blood flows from a wound."

Muscarine should be effective in the treatment of hemorrhages from the pulmonary area, if administered in doses sufficient to develop its full action.

Data collected regarding the results of administering atropine in full doses as a remedy for hemorrhages showed its efficacy in every form of bleeding to which man is liable. Very few exceptions were reported, but among them two where it failed in hemorrhage from the respiratory tract.

Since atropine proved invariably capable of controlling passive hemorrhages, it seemed clear that it did so by actively stimulating the vasorelaxants, since, if the action had been a relaxant one directed against the vasocontractors, these passive hemorrhages must have been increased.

The failures of atropine in hemoptysis were exceptional, and many more successes were reported. It may be that where it failed the doses were not large enough, inasmuch as the efficacy of the remedy was apparent only when enough had been administered to flush the skin, engorging the cutaneous capillaries. The capacity of the capillary system being 700 times that of the arterial system, it is easy to see how a slight increase in the lumen of the former would accommodate so much of the blood that there would be none left to escape from an open vessel.

However, the fact is that atropine did fail in several instances of this form of hemorrhage; and, if any other agent were to offer greater probability of success, that is the remmedy of choice.

In this respect, we may advert to the recent use of emetine for pulmonary hemorrhages. Emetine is rather closely allied therapeutically with muscarine, and the success of the former is more presumptive evidence favoring the likelihood that the latter should prove effective.

Muscarine is peculiarly difficult of dosage, since, like other relaxants of vascular tension, it passes out of the body swiftly. Hence, it should be given in very close doses, a milligram every five minutes, until its characteristic effects are manifest. These are softening of the pulse, general relaxation, and coolness of the skin. It should not be pushed to the induction of vomiting, purging, anemic vertigo or muscular weakness. An overdose is speedily overcome by atropine, which, although slower in getting to work, is far more powerful than muscarine. Muscarine ren-

ders the heart beats weaker and slower, and large doses arrest its movements.

This alkaloid might be tried when there is that stuffy feeling in the chest that precedes a hemorrhage. Also, since the consumptive usually is relieved by the bleeding, provided pains are taken to avoid the inflammation excited by dead blood, it seems that muscarine, by lessening the quantity of blood in the lungs, should exert the same beneficial action as a pulmonary hemorrhage. If this remedy also proves useful in relieving the cough, it may be a valuable addition to our therapeutic resources in phthisis.

However flowerless the ways
Of grim November,
However dull and drear her days,
We should remember
One happy time she sets apart
For royal living,
A gift to cheer and bless each heart—
It is Thanksgiving.
—Emma C. Dowd.

THE PLACE OF CALCIUM SULPHIDE IN THERAPY

Since the conquest of South America, more than four centuries ago, ipecac has been one of the commonest of our remedies. For all that, it is within the last few years that we have witnessed an amazing widening of its therapeutic application. When its chief active principle, the alkaloid emetine, was isolated and presented in chemically pure form, the remedial values discovered to be residing in it fairly amazed the medical world. We look upon this fact as the opening-wedge of a revival of interest in drug-therapeutics. Indeed, we may say frankly that there is not a drug described in the dispensatory the limits of whose useful applications are fully known.

It has been but a few years since we discovered in magnesium sulphate properties such as the profession did not dream of during the centuries of its constant daily employment in various ways. What drug will be the next to attract the attention of the medical world to the wonders lying undeveloped in our materia medica?

Just now the remedy apparently most likely to come into immediate prominence is calcium sulphide. For years, our journals have published, from time to time, papers in which favorable mention has been made of this chemical; although thus far no one—outside a certain group—has appeared to be particularly enthusiastic about it. Just now, you know, enthusiasm over any therapeutic measure is rather out of date.

On the other hand, whenever calcium sulphide has been written about, the comments have been significant. Thus, Robinson, in his *Critic and Guide*, quotes a case of gonorrheal rheumatism in which billions and billions of bacilli had been injected, without benefit, after which brilliant success followed saturation of the patient with calcium sulphide. This experience has been repeated by quite a number of other clinicians. The present writer has made a like use of this chemical in many instances and up to the present it never has disappointed him.

In a recent issue of *The New York Medical Journal*, Gray, in speaking of the treatment of German measles, writes: "The one drug that may be commended for its service is calcium sulphide. But it must be an efficient preparation, well protected from the atmosphere." This concluding warning seems to be especially needed with regard to this remedy, the pharmaceutical manipulation of which appears to present unusual difficulty. One eastern firm, some years ago, made public announcement that it had withdrawn all calcium sulphide preparations from its list, having found it impossible so to manipulate it as to be able to guarantee the preparation.

The present writer has had many striking illustrations of the value of calcium sulphide of prime quality, perhaps the most notable more recently being one that happened two years ago. A baby landed in our summer camp with a full-blown whooping-cough. There were more than twenty children in the camp that were not immune to this disease. An examination of the child showed that its banishment would probably result in its death; so, the question arose as to preventing extension of the disease through the camp. Happily, this proved an easy matter: the pertussic baby was saturated with calcium sulphide, whereupon it promptly recovered from the whooping-cough; and although the nonimmune children associated freely with it, not one contracted the malady.

One might be tempted to ask whether it were possible that the disease had reached the noninfectious stage, if such a thing really occurs in whooping-cough—one of the most infectious maladies known to humanity.

This is but an isolated instance, the doubter might suggest; but, when for many years such experience has been unvarying, we may be quite sure of the action of the remedy. Frequently this writer has saturated the children of a family in this manner when one had contracted the disease; and the others,

nonimmune, not only escaped the infection then, but for years afterward proved immune to infection with this particular malady.

The only explanation which seems possible is, that before calcium sulphide was administered they had already contracted the disease to such a degree as to confer the same immunity as those enjoyed who passed through the entire course of the affection.

For twenty years, an unbroken series of similar experiences has occurred to this writer, in dealing with children affected with mumps.

The question now arises, would saturation with calcium sulphide be effectual in warding off an impending attack of infantile paralysis? Since the remedy is harmless, is easily administered, and its effect is quickly and markedly manifested, there seems to be no reason why a widespread experimentation should not be conducted.

In the case of any children under ten years of age, when undoubtedly exposed to the infection of infantile paralysis, we earnestly advise prompt saturation with calcium sulphide. This does not mean that other measures should be neglected, such as putting in order the hygienic surroundings of the child, in and about the residence, careful cleansing of the throat and nose with non-irritant antiseptics, care for the digestion, especially seeing to the functioning of the alimentary canal, and such other measures as the physician may deem justified in each particular case.

Finally, let us have reports of your experiences, whether they be good or bad—especially if adverse.

The world applauds and bows before success and achievement; it has little thought for those who fall by the way, sword in hand; and yet it takes most courage to fight a losing fight.—Edward L. Trudeau.

CARDIANTS

The time is not so long ago when about all that the body of the physicians knew about the therapeutics of the heart was that digitalis acted upon a certain part of our anatomy, the heart. And a dangerous bit of quasi-knowledge it was, too. The heart is not a physiologic entity, an atom, one and indivisible, but an organ containing muscular tissue, nerves, and vessels. Yet, even now the fact that digitalis is employed far more extensively than all other cardiants together leads one to question whether the profession as a body has greatly altered its position or its practice.

Remedies may incite or sedate the muscular tissue, the central or the peripheric nerve-ends or their trunks or alter the caliber of the vessels either by stimulating or relaxing the vasomotors or the vasodilators. In fact, Brunton arranged the cardiant remedies under nine classes, each with two groups.

The cardiac muscle is stimulated by

Digitalin
Digitalein
Digitoxin
Erythrophlœin
Helleborein
Nerein (from oleander)
Silelain
Antiaric
Strophanthin
Thevetine
Thenveresin

The above are known as cardiac poisons. Larger doses cause stimulation followed by peristaltic action, and finally arrest of the heart in systole.

Stimulants not included in the above groups are:

Veratrine
Barium salts
Caffeine
Potassium salts, in small doses
Copper double salts, in small doses
Zinc double salts, in small doses

Another group comprises agents that do not cause cardiac peristalsis or arrest the heart in systole, but they excite the heart to pulsate rhythmically, after it has been made to stand completely still in diastole by the application of muscarine. These are:

Guanidine
Physostigmine
Camphor
Monobromated Camphor
Borneol
Arnica camphor
Aniline sulphate
Cumarine

In the case of all these, stimulation is denoted by increase in the energy of the contractions, the rate of the pulsations remaining the same or being slower.

Depression is shown by weakening of contractions, with final stoppage in diastole. The heart-muscle is shown to be paralyzed, by no longer contracting on being stimulated by mechanical or electric irritation.

The cardiac muscle is depressed or paralyzed by

Salicylic acid, in large doses
Potassium salts, in large doses
Copper double salts, in large doses

Zinc double salts, in large doses
Quinine, doubtfully
Saponin, which removes the systolic standstill induced by digitalin
Apomorphine
Emetine
Muscarine
Pilocarpine
Veratroidine
Jervine

To these may be added digitonin, which closely resembles other saponins in its action.

The seeker after new knowledge, the research-worker, need not fear that the field of therapeutics has been fully gleaned. The truth is, that it has not been reaped or even skimmed over. Take this example: Go to the best medical library in reach, get out all the modern textbooks on therapeutics and from them tabulate the data on the list of cardiants above given.

One need not go into minute particulars, but state the action of various-sized doses, the time required for each to manifest its activity, the time required to reach its maximum of energy, how long this endures, how much time is occupied by the subsidence of activity, and the routes by which the medicinal principle leaves the system, and how long this takes. Since there are groups of remedies known to affect certain parts of the cardiac organism, such as the muscular fibers, one should know in what respects these differ; for, if the action is identical, the remedial agencies must be identical, and *vice versa*—if these are different, their action can not be absolutely uniform.

But, if you find that all the textbooks published fail to supply this elemental information, kindly tell us why we should look upon therapeutics as a finished, completed study, in which no further advance can be made? Finding that all the therapeutic texts in the world fail to give these primary facts, you will begin to realize with us that we have not yet even begun the investigation, in the modern scientific manner, of our remedial resources.

When this stupendous work shall have been made, then we may begin to observe the action of drugs in combination. The final result must be that we have a cabinet of remedies with which we may affect the disturbed vital functions in the way of restoring physiologic equilibrium and health before material lesions have been effected.

A dream of the millennium? Probably; but neither we personally nor the world at large will be hurt if we seek to produce millennial conditions, each in his own sphere.

The role of the family practitioner is a more important one than the specialistic tendencies—greater in the public than even in the profession—would appear to admit. Both prevention and cure, mainly the former, are his duty and his privilege.—Abraham Jacobi.

THE NONOPERATIVE TREATMENT OF GOITER

Consciously or otherwise, we all tend to move along lines of least resistance. In the case of goiter, it seems the easiest method to ship the patient off to Rochester, Minnesota, with our best wishes for the results.

There still is, however, a remnant of the profession who believes that an effort to cure a diseased organ must sometimes be successful, at least often enough to make it worth while trying before condemning it.

Take, for instance, that form of goiter likely to develop in young girls at the period of puberty. There assuredly subsists some association between the thyroid-malady and the tremendous change taking place in the constitution of the girl at this time. It certainly does not seem unreasonable to entertain a belief that methods of treatment may be put into operation that will check exuberance of both functions and reduce them, aided by the gentle influence of time, to a physiologic level. We have long advocated the change in the relations of the physician to the community that would make the former the adviser with a view to preventing, rather than treating disease.

It seems as if the development of the medical profession and of the general intelligence of the community has progressed to such a degree that children may be brought up under the advice of the physician, instead of never seeing him until they are stretched upon the bed of pain. At what time of life is the sanitary direction of the family of greater importance than when the young girls are passing from girlhood into womanhood? The development of some physical or mental disease that is influencing the entire future life often can be traced to improper management during the years of incipient puberty.

Just as we had reached this interesting point in our discourse, chance threw into our hands a copy of a journal published by a certain set of medical practitioners who still believe in the utility of strictly medical services—if they are not so oldfashioned even as to consider that the potent qualities inherent in drugs may be utilized for the

benefit of humanity. In the journal in question, we find a paper upon goiter in young girls, and from this we extract the following passages:

"Wilkenloh (*Ellingwood's*) reports several cases of goiter treated by injecting echafolta into the tumor. One was in a girl of 15, whose right thyroid had enlarged after mumps. She had shown symptoms of tuberculosis at puberty, menstruation irregular, otherwise well nourished. Echafolta, 1 to 2 mils (Cc.), was injected into the tumor every third day; and internally she was given macrotys, echinacea, and scutellaria. The tumor disappeared after three weeks' treatment.

"A girl of 11 had a vascular central goiter, also albumin and sugar showed in her urine. The goiter disappeared after three injections of echafolta. At 21, she married and during pregnancy the goiter returned. Glycosuria persisted until delivery, after which the tumor slowly subsided. No hypodermics were used during pregnancy, but the woman took, internally, macrotys, pulsatilla, nux, echinacea, and amenopsis cal. Without this, the author asserts, the goiter will increase after delivery; with it, the goiter and glycosuria vanish with birth.

"A boy of 17 had goiter following pleurisy—central, soft, with high blood pressure, dysphagia, harsh voice, anemia, and great nervousness. The fluid from the thyroid was bloody, tenacious, containing tubercle bacilli, with streptococci. Great cardiac disturbance, thyroid pulsation quite evident, pulse and heart beat violent. This lasted two days. Injected into the tumor veratrum, 1 to 1 1-2 mils (Cc.), three times in two days; applied libradol thinly over tumor; in two days, the tumor was smaller, heart weak, tension low. Stopped both remedies, gave belladonna and cratægus, with lobelia subcutaneously, injected into thyroid daily for seven days, 16 to 20 minims. The goiter disappeared. After this, the patient had only internal medicine—nux, trifolium, and a meat-free diet. Four years later, there had been no return and the lungs were sound. During the illness, the patient suffered from coughing when he lay in a position that allowed compression of the vagus. This was relieved by tela aranea dropped on sugar.

"A boy of 11 had tuberculous cervical adenitis; thyroid enlargement; injected echafolta into tumor, 1 mil (Cc.) every third day, raising to 3 mils (Cc.). The tumor subsided. Another appeared in the axilla some weeks later and was treated similarly. The high blood pressure fell. He was very nervous. The axillary injections were painful. He could not lift the arm for twenty-four hours after each, without suffering. Libradol over this tumor eased the pain and promoted dissolution. Internally, he had iris, phytolacca, echinacea, and fucus. The tuberculous masses gradually disappeared.

"A pregnant woman of 24 years; soft, fluid goiter; diabetic; urine, sp. gr. 1042; sugar and albumin; same trouble with first child, but subsided under treatment. Between pregnancies, had gonorrhea. Treatment has kept the goiter in check; but has not cleared up the sugar. Patient will not adhere to diet."

Whether we accept the author's beliefs and conclusions or not, it is certainly refreshing to find that there still remains somebody who believes in the active and hopeful intervention of the physician; and that the ailment, not necessarily destructive of the organism affected, may be tided over; and health may be reestablished with the assistance of good, kindly old Dame Nature; this result being, by no means, unaided by the doctor's efforts.

It is edifying to compare the simple faith underlying the administration of the remedies in question with the half-hearted, pessimistic way in which the ordinary doctor administers his placebos, with which to fill in the time until the patient's mind has become reconciled to the necessity of operative intervention.

Nothing is easier than for those who have never employed the remedies in question to proclaim their utter disbelief in their efficacy. There may be some among the many thousands of readers of this journal who can truthfully say that they have earnestly and justly given full trial to the methods of treatment mentioned in cases similar to those described, and, yet, have not accomplished useful results. Unless one can say this, it is idle to assert that there is no value in medical treatment. One does not have to believe the reports that are published. Yet, several things are necessary before one has a right to express an opinion on any topic of medical practice. Certainly, it occurs not infrequently that, when one endeavors to put into operation the methods and remedies prescribed by a colleague, the second does not win the success asserted by the first. But there are several explanations of this phenomenon. One is, the lack of skill on the part of the second practician. Another is, a variation in the conditions, either in the disease itself or in the patient's environment.

Possibly a difference in the quality of the drugs employed occasionally may account for

the notorious differences of opinion among physicians, as to the value of therapeutic measures in seemingly similar cases. When these differences are manifested, however, it seems that the right way is, for all parties concerned to compare their cases carefully and ascertain in what points the difference lies and what may be the underlying conditions. One may not have diagnosed his cases correctly. He may really think that he is treating and curing certain diseases, which, however, are not present. Many a man attributes a cure to the remedies which he has given, when something else has been at work.

There are a good many things about our cases which we do not know. This writer will never forget the apparently brilliant results following the treatment of a young girl for a grave form of nephritis, when he still was a medical student. The efficacy of the treatment, however, was rendered somewhat doubtful by the discovery of numerous spermatozoa in the patient's urine. There were also tube casts and albumin, characteristic of her disease, which were found to be present in undiminished quantities.

It is the law that he who gives greatly of himself to life in love and kindness and sympathy receives back tenfold what he gives; while he who demands all as by divine right, is denied in exact proportion to his demands.

A NOVEL VIEW OF ACIDOSIS

Sweltering through a summer doubly hot, in contrast with last-year's coolness, weakened to a marked degree by perspiration, with its consequent loss of the saline elements of the blood, we were suddenly reminded of a friend who had stood us in good stead under similar conditions—Horsford's acid phosphate.

In years gone by, advertisements of this preparation could be found in the pages of almost every medical journal of standing, but for a very long time these scarcely have appeared in print. Probably the reason for this was the substitution of another preparation, known as compound phosphoric acid mixture, which had been advised by certain authorities. We well remember when this latter preparation first was advocated. We prescribed it, but when the retail pharmacist charged for it exactly double the price that he had formerly received for the original our interest in it declined.

Then it happened that we discovered a bottle of Horsford's phosphate upon the shelves of a neighboring pharmacy, and we and members of the family began to use it, with relish and benefit. But, just as we were beginning to congratulate ourselves upon the new acquisition, we received a number of *American Medicine*, which was devoted entirely to the subject of acidosis.

Acidosis! Reading the article, our eyes were opened to the terrible mistake we were making. Our great blunder in using this acid had been detected and, yet, not only were we partaking of the acid phosphate, but we had incurred the fearful risks entailed by pouring vinegar on our salads and squeezing lemon-juice on our sardines. How *could* a doctor be so thoughtless! How could our professional predecessors possibly have fallen into the error of finding an increased percentage of cures of typhoid fever, when an acid was systematically administered in all such cases? What were we thinking about when we administered the tincture of chloride of iron, with its content of the powerful hydrochloric acid, and prescribed this same acid, together with pepsin, habitually for every patient who showed feebleness of stomach-digestion?

Evidently we have been wandering, childlike, along the brink of a yawning precipice. And how it has happened that we did not tumble over is one of those mysteries that no man can fathom. Really, we should be tempted to revert to the ancient belief that some angel-hand was keeping us away from the perilous brink, were it not for a well-founded conviction that the celestial section of the supernatural world had long since given us up as a bad job and that the only immaterial beings concerned in us would probably have given us a sly shove.

From the one hundred or more pages of the excellent number of *American Medicine* referred to, we learn that the science of medicine has been reduced to such a degree of simplicity that it seems incapable of further advance in this direction. Etiology and therapeutics, we are told, at last are established on a firm basis. The cause of disease is, acid; the remedy is, soda. Why need we worry about the habits of our patient, the hygienic condition of his environment, whether he uses tobacco or alcohol or drinks no water? Why not wait until the patient is a walking cesspool and let the raging bacterium rage until it gets tired? These things are of no consequence whatsoever. No matter what may be the complaint of our patient, just hand him a big rectangular package, imprinted with the device of an arm holding a sledgehammer, and tell him to whack

away at it until the last fell molecule of acid is exterminated.

We knew before that in saccharine diabetes the presence of acidosis is fraught with the greatest of dangers. We now learn that excessive vomiting in a child is due to the same cause. The child in the mother's womb is not safe against it, since the toxemia of pregnancy is a result of acidosis. The surgeon blames acidosis for spoiling the results of his operation, but, singularly enough, has not yet devised a surgical stunt for its removal. The most disastrous maladies affecting the human brain as well as the most exasperating affections of the skin are to be attributed to the same source. It is the peril of the anesthetist; it snuffs out the breath of life from the asthmatic; to it is credited the grouchiness of age. The piteous lacrimation of the hay-fever victim is nature's plea for soda. The convulsion of the epileptic is a visual protest against this arch-enemy burgeoned on the nerve-centers. The remarkably high cost of living of the past year or two, which has induced so many of our colleagues to forego a new summer outfit this season, should be directly attributed to the European war and the enormous consumption of acid required to carry on modern warfare. The great ferocity of the world-conflict undoubtedly is due to the fact of its being waged for the possession of the famous springs of Vichy, the principal source of soda for the eastern world.

We have simply skipped over our subject, touching airily a few of the higher points, but would suggest to our readers that they secure a copy of the number of *American Medicine* in question and in an hour's time appropriate to themselves an epitome of modern pathology. Were one financially qualified, he might first go out and corner the visible supply of the alkali, before the information contained in this remarkable magazine shall have become public property. One desirable result might be, to establish a market for the surplus alkali of the western plains in which the soda-salts predominate.

More seriously: returning from his last European trip, Doctor Talbot spoke to the present writer of the enormous popular use made in France of soda, and of the many ways in which this substance is being prepared for palatable taking, and offered, not only at pharmacies, but by grocers, in tablets, effervescent combinations, and other forms. The advance of science frequently reveals to us the true underlying reasons for popular habits, and this holds good as to soda.

The laboratories have demonstrated some astonishing powers residing in this alkali, in its capacity of sustaining and stimulating the vital forces, as opposed to the paralyzing influences of magnesia. This action can not be attributed to any neutralization of a blood-acid; for, Crile has shown that acidemia is an impossible condition, and that we should speak rather of a more or less pronounced sodium-deficiency. Sodium is a nutrient substance, an essential element of the body, and not to be looked upon as a drug. This explains the constantly growing demand for a certain effervescent form of alkali, which as we are informed by its manufacturer, was introduced a few years ago and was not pushed by advertising, but was just left to sink or swim, as its merits developed. The demand for this preparation may, consequently, be taken as the legitimate verdict of the medical profession upon its applicability, and this demand has grown to almost incredible figures. One might ask whether the remarkable showing made by the French in the great war may not be attributable to the free general use of soda—but nobody who has watched the work of France since 1871 needs any explanation of their prowess.

As a matter of fact, the vegetable acids really promote blood alkalinity, and the citrus-fruits are most efficient remedies for acidosis. It is doubtful whether the so-called acid phosphate acts like the other mineral acids, for, clinically it seems to belong to the vegetable-acids group. If so, we are vindicated and may jubilate over the fact that our observations on the value of phosphoric acid are, in truth, harmonious with the trend of modern opinion, as shown in the journal whose fine presentation of the acidosis-matter forms the basis of this screed.

The day has come when the physician should look upon the patient, not as an ignorant child, but as a human being endowed with more or less natural intelligence, as one, in fact, who has the right to demand an explanation of the way certain effects follow certain causes.—Lawrason Brown.

THE CHEMISTRY OF FOOD IN RELATION TO NUTRITION

The role played by the various saline constituents of the food at last is being determined with scientific accuracy. To Almroth Wright, we owe direction of professional attention, universally and powerfully, to the symptoms traceable to calcium starvation. Salt (NaCl) plays a very peculiar part. Essential as it is, under some circumstances, this familiar table-condiment becomes a danger. Inject into the veins a salt-solution

isotonic with the blood-serum, and the kidneys at once begin to let slip through the sugar held in the blood. But, if to the chloride-solution we add a little of potassium, magnesium, and calcium salts, much larger quantities of the sodium-salt may be injected into the veins without inducing glycosuria. Then, what is required is, a "balanced ration" of the mineral constituents.

Remove a turtle's heart, place it in a moist, warm container, and it will continue to beat for hours. Immerse it in an isotonic solution of sodium chloride and it soon ceases to beat. Then add a little calcium-salt solution and the beating is resumed. Push the calcium, and the diastole weakens, until the heart stops in systole. Then we can start it again by adding potassium, but, by increasing the dose, we finally stop the heart in diastole. One almost incredible point brought out in the studies being conducted at the University of Wisconsin is that the experimental animal was not able to adjust the proportion of mineral constituents in the food, so as to escape injury, to anything like the extent commonly assumed.

Another exceedingly important observation in these investigations was that by which it was determined that wheat-grain and straw contain a principle that is poisonous to cattle and hogs. Neither organic fats nor saline combinations sufficed to overcome this toxin. It was established that this toxic principle exists in the oil of the germ, and that the germs freed from this oil are harmless. The inorganic elements of the wheat-germ required the addition of salt, when the special factor represented by butter-fat was deficient, before growth would start. This is why we must butter our bread.

A further significant observation was made, namely: when, to fat-free wheat-germs, dextrinized starch, butter-fat, and the proper salts, were added, growth took place at an almost marvelous rate; the mixture containing only one-third of the protein when the entire wheat-kernel is given. The wheat-germ is rich in nuclein, and this is not contained in the oil. That a preparation of wheat-germ containing the nuclein should stimulate the vital processes, as shown by a growth almost marvelous, is no surprise to those who have become familiar with wheat-nuclein therapeutically.

An admission for which we are scarcely prepared is that of Prof. McCollum, to the the effect that no laboratory manipulation can determine the nutritive value of any food, but that it must be tried "on the dog."

To make it a perfect food, polished rice not only requires the addition of protein, butterfat, and salts, but the water-soluble "B" factor, as found in wheat-germs must be present. Here is a suggestion for the devisers of baby-foods.

All grains lack the peculiar factor "A" present in the fats of eggs and butter, but which is especially abundant in alfalfa. The water-soluble factor "B" also is abundant in alfalfa-leaves. Young animals were grown to normal size on a mixture of alfalfa-flour, 40 percent, and polished rice, 60 percent.

Eward, of Iowa, had good success in feeding pigs on the cafeteria plan—letting them eat what their appetite preferred. But, McCollum's rats did not grow anywhere near as well as those for whom the food was selected paternalistically. Even the monotony of a diet of 50 parts corn, 30 parts alfalfa-flour and 20 parts cooked peas did not impair growth or reproduction. Ergo: the animal does not select as well, by instinct, as does the scientist from knowledge.

The late Doctor Sudduth went to much pains and expense to introduce alfalfa as a food for man. He gave a dinner here, in which every dish contained alfalfa as a component or a flavor. He also increased the nitrogenous principles of the plant by careful selection and propagation. His work was but just beginning to bear fruit when unfortunately, he was carried off by pneumonia (the fatal outcome being determined, undoubtedly, by an organic heart malady which he had had for many years).

The preliminary steps have been taken, what now remains is, for the commercial handlers to introduce alfalfa in forms available for human use and then by judicious publicity to render the public familiar with it. The observation, above quoted, of the sufficiency of mixtures containing this forage may serve for a guide.

We look to see alfalfa-flour adding materially to the world's food supply, increasing the growth of the young and the reproductivity of the adult, while at the same time it solves the question of the increasing cost of living, by presenting large quantities of nutritious pabulum, produced at a cost of about one-fourth of a cent per pound. Attention, O ye capitalists!

CHLORAL—IT HOLDS ITS OWN

Despite the constant appearance of new hypnotics, the oldest of all of them, chloral hydrate, still holds its own. In fact, we

have heard experienced clinicians express the conviction that not one of the newer introductions equals this old standby.

A recent French writer, Martinet, comes out boldly in defending chloral against what he claims are erroneous charges made against it and have led to its neglect. Thus, he thinks the warning against the use of this agent in the presence of heart trouble is unwarranted. The prevailing impression concerning its dangers he ascribes to the results of experiments when toxic doses were injected into the veins of animals. As a matter of fact, depression of the heart-muscle does not occur until enough chloral has been given to depress dangerously the respiratory and cardiac centers. Many patients have taken an ounce of chloral a day, without the circulation being influenced injuriously. Tolerance has not been found to result when chloral had been administered daily for prolonged periods.

The chronic toxic action of chloral is especially exerted upon the nerve-centers, those of the vasomotors; but not upon the heart. Martinet finds that the combination of chloral with the bromides is employed by very many physicians for the relief of general spasm and that of the blood-vessels, especially when connected with high vascular pressure, whether there is insomnia or not. Brunton has suggested that when marked vasodilatation and loss of heat results after the administration of chloral the patient be kept warm.

Martinet also calls attention to the value of chloral when there is a scanty secretion of urine, in the presence of insomnia and high blood pressure, especially when the latter results from nervous excitability, with consequent constriction of the renal vessels. Where the excretion of urine is diminished materially, in certain cases, sleep is induced by chloral, followed, on awakening, by an abundant flow of urine, and also a sense of wellbeing, relaxation of the nervous system, and improvement in respiration. The drop in the systolic blood pressure, which may attain 30 or 40 millimeters, is coupled with a corresponding fall in the diastolic tension; thus showing a peripheral as well as renal vasodilation.

Pilocarpine has been used in doses so large as to cause constriction of the renal vessels, arresting the flow of urine; then a small dose of chloral has overcome this difficulty. We believe that the combination of chloral and caffeine often is of value as a diuretic.

A contraindication to the use of chloral is found in vascular asthenia of nervous character, with low blood pressure and somnolency, whether the urinary output has been reduced or not.

While instances of poisoning from chloral are not common, yet, they undoubtedly occur in practice, and more than one good clinician has been terrified by the sudden appearance of collapse following even very moderate doses of this drug. This has been ascribed to the formation of some other and more toxic substance, through the action of the digestive fluids on the chloral; or, more probably, to its combination with other remedies, for, we think that chloral has been one of our most abused drugs.

As a rule, these artificial chemical compounds should not be prescribed with each other or with remedies of other classes. Their chemical reactions and their action are, by no means, certain and disaster may result from a combination of remedies which, taken alone, are harmless. The tendency to polypharmacy is so great in the profession, however, that giving single remedies with a distinct purpose is almost unknown.

Despite the able presentation in favor of chloral by our French colleague, which the reader may find in abstract in *The New York Medical Journal* for July 29, the present writer has little use for chloral. The clinician who has studied insomnia and its factors, and the high blood pressure, will have more directly effective remedies in gelseminine and the other vasorelaxants. This writer has not prescribed a dose of chloral for years, but it happens that his supply of gelseminine requires constant renewal. He does not see how it would be possible for any person at all fit to administer medicines to do any harm with gelseminine. In the case of veratrine the irritability of the stomach occasioned by it is so great as automatically to stop its administration long before the point is reached when it might depress the circulation injuriously.

Gelseminine is one of the surest and most manageable of drugs. The present writer has given many thousands of doses of it and has yet to see any ill consequences, immediate or remote, occurring from its use. He always has administered these remedies singly, because the indications for them are so clearcut and precise that there is no excuse for polypharmacy. It appears that gelseminine probably is indicated twenty times more frequently than veratrine, the latter being a very powerful remedy, usually held in reserve and being used in cases that are not easily controlled by gelseminine.

Leading Artieles

The Alkaloidal Phosphotungstates

A New Class of Alkaloidal Salts

By Carl Nielsen, Ph. C., Chicago, Illinois

A New Class of Alkaloidal Salts

THE powerful active principles derived from plant-drugs are, as a rule, administered in the form of soluble salts. These compounds, as also the basic alkaloids themselves, very often possess a very bitter taste, while some of them will produce irritation of the stomach-wall even in therapeutic doses. Thus, for instance, emetine, one of the most valuable active principles, can not, as we know, be administered practically in full dosage by mouth—either in the form of the pure alkaloid or of the hydrochloride, or of another known soluble salt, because of its pronounced irritant action upon the gastric lining, which causes the patient to vomit it up before it has had time to produce the desired effect. Other active principles, quinine and strychnine, for example, are so extremely bitter that the patients, especially children, refuse to take them in uncoated tablets or in solution.

These highly undesirable properties of a large proportion of our potent alkaloids have been recognized for years and many attempts have been made to remedy them, but without real success. It was with these facts in mind that I took up, some months ago, the study of the phosphotungstates.

Phosphotungstic acid has been known for many years as a reagent for alkaloids, with which it forms insoluble or at least practically insoluble combinations. But not only alkaloids react in this manner with phosphotungstic acid; it has been in use in chemical research as a means of separating organic principles of different chemical nature by the precipitation of some of them as phosphotungstates, as, for instance, the active amines in ergot, the glucosides of various plants, and the active substances of the pituitary gland. In the manufacture of betaine (trimethylglycocoll), this latter substance is separated by precipitation with phosphotungstic acid.

The Alkaloidal Phosphotungstates as Medicina Agents

In view of the property of phosphotungstic acid to form insoluble or practically insoluble combinations with almost all the active principles of the plant-drugs, and as most of these phosphotungstates are tasteless (or practically so), insoluble in dilute acids and easily decomposed by alkalis, the possibility of using them in medicine was investigated.

The first three phosphotungstates to be studied were those of emetine, quinine, and strychnine. These three compounds are all insoluble in water and in dilute acids. When administered by mouth, they pass the stomach unchanged, but upon entering the duodenum they are gradually decomposed during their passage through the intestinal tract as the various alkaline secretions act upon them. The alkaloid is set free and at the same gradual rate absorbed through the intestinal membrane, together with the soluble salts of the phosphoric and tungstic acids (presumably mainly sodium phosphate and sodium tungstate) that are formed at the same time.

When alkaloids are thus administered as phosphotungstates, they exert their full physiologic action, without causing any unpleasant effects upon the stomach. However, before the phosphotungstates can be used in medicine, it remains to be seen whether the mineral tungstates formed in the intestinal tract are, in any manner, harmful to the system or interfere with the action of the active principle itself.

Below is a report on the preliminary animal experiments conducted with the three alkaloidal phosphotungstates in question.

Emetine Phosphotungstate

The phosphotungstate of emetine contains approximately 19 percent of emetine, 3.7 grains of emetine phosphotungstate equaling

in emetine content 1 grain of emetine hydrochloride. It is a fine pinkish-gray tasteless and odorless amorphous powder, insoluble in water, dilute acids, alcohol, and ether. Alkalis decompose it, precipitating the free alkaloid, under formation of the soluble tungstates and phosphates. It is also decomposed by concentrated sulphuric and nitric acids.

ANIMAL EXPERIMENTS, SERIES 1

Dog No. 170. Weight, 20 pounds; male.
Oct. 1.–1 grain emetine phosphotungstate, orally; no visible symptoms.
Oct. 2.–2 grains emetine phosphotungstate, orally; no visible symptoms.
Oct. 4.–8 grains emetine phosphotungstate, orally; no visible symptoms.

On October 7, the dog was anesthetized with trichlorbutylalcohol and prepared for a blood pressure test. The solution for testing was prepared by dissolving 2.52 Grams of phosphotungstic acid in 5 mils (Cc.) of water, neutralizing with sodium hydrate, and adding sufficient water to make a total of 9 mils (Cc.). Of this solution of sodium phosphotungstate, 1 1-2 mils (Cc.) corresponds to 0.42 Gram of phosphotungstic acid; which, again, corresponds to 0.5 Gram of emetine phosphotungstate (7.2 grains)—a relatively large dose if administered internally, and certainly very large for intravenous injection.

The dog was given an injection of 1 1-2 mils (Cc.) of the above-mentioned solution into the femoral vein. The blood-pressure rose immediately, and continued to rise until it was 54 mm. above normal. It then fell gradually during an hour and a half, when it was again normal.

Dog No. 172. Weight, 38 pounds; male.
Oct. 16.—1 grain; no symptoms.
Oct. 17.—1 grain; no symptoms.
Oct. 18.—1 grain; no symptoms.

Dog. No. 173. Weight, 20 pounds; male.
Oct. 16.—1 grain at 8 a. m. 1 grain at 12 m. 1 grain at 5 p. m.; no visible symptoms.
Oct. 17.—1 grain at 8 a. m. 1 grain at 12 m. 1 grain at 5 p. m.; no visible symptoms.
Oct. 18.—1 grain at 8 a. m. 1 grain at 12 m. 1 grain at 5 p. m.; no visible symptoms.

The dog was bled to death. Postmortem examination: Stomach practically normal; intestines also normal, except the lowest portion, where the mucous membrane showed a slight hyperemia. Kidneys were slightly congested. Bladder normal.

Dog. No. 174. Weight, 21 pounds; male.
Oct. 19.—3 grains at 8 a. m.; no symptoms. 3 grains at 12 m.; slight attack of vomiting at 1 p. m. Fed at 3 p. m. Vomited approximately one-third of the food at 4:45 p. m.; peristalsis at same time. 3 grains at 5 p. m.; no symptoms.
Oct. 20.—3 grains at 8 a. m.; slight attack of vomiting at 8:30. 3 grains at 12 m.; no symptoms. Given a little food at 3 p. m.; neither vomiting nor diarrhea followed.

The animal was bled to death the next morning. Postmortem examination: Stomach practically normal; hyperemia of the intestines, except of the colon, which was slightly irritated. Bladder slightly irritated. Slight congestion of the kidneys.

Dog No. 176. Weight, 30 pounds; female.
Oct. 19.—7 grains at 9:30 a. m.; vomited once at 1 p. m.
Oct. 20.—7 grains at 9:30 a. m.; vomited once at 10:50 a. m.

The dog was given a larger amount of food than usual at 3:00 p. m. on both days. Neither vomiting nor diarrhea followed the meals.

The dog was bled to death. Postmortem examination: Slight hyperemia of the lower part of the stomach-wall and the intestinal tract down to the cecum. Enteritis of the cecum and colon. Pronounced congestion of the kidneys. Bladder-wall markedly irritated. (Found to be chronic and not due to the drug).*

Dog No. 177. Weight, 30 pounds; male.
Oct. 20.—Given 7 grains of phosphotungstic acid, in a gelatin capsule, by mouth. Vomited ten minutes after this dose, and a second time twelve minutes after the dose.

Dog. No. 178.—Anesthetized with morphine sulphate and trichlorbutylalcohol and prepared for blood-pressure test.

One gram of phosphotungstic acid was dissolved in 10 mils (Cc.) water, neutralized with sodium hydroxide, and sufficient water added to make a total of 15 mils One mil of this solution was injected into the femoral vein. This dose caused a rise of blood-pressure of approximately 20 mm., which was sustained for only a few minutes. As soon as the blood-pressure had become normal, both vagi were cut, then the dose was repeated. This second dose caused a still higher rise of blood-pressure. It is, therefore, probable that the tungstate of sodium acts peripherally, by stimulating the

*The postmortem examinations were made by Dr. C. A Zell, pathologist of The Abbott Laboratories.

sympathetic nerve-endings and contracting the muscular walls of the blood-vessels. Its action is, presumably, somewhat like that of the barium salts. This point will be investigated further.

Judging from these results, phosphotungstate of emetine, when administered orally, in therapeutic doses, causes no discomfort, no irritation of the stomach and intestines, no vomiting or diarrhea. Both phosphotungstic acid and emetine are powerful emetic agents when given separately. In combination, they lose this action, because the salt phosphotungstate of emetine is insoluble in water and dilute acid and passes the stomach unchanged. Very large doses of this emetine compound produced vomiting in some dogs but not in others. The attacks, however, were slight and nothing as compared with the violent vomiting caused by correspondingly much smaller doses of emetine hydrochloride, and they were diminished or entirely avoided when the animals were given only little or no food during treatment.

The more or less congested kidneys in all of the dogs examined after treatment, and the slight irritation of the bladder in some would seem to indicate that the phosphotungstic acid is excreted, partly or entirely, with the urine.

Analysis of Stomach Contents After Oral Administration of Large Doses of Emetine Phosphotungstate

Two female dogs, weighing approximately 15 pounds each, were chosen for these tests.

Nov. 5.—The dogs were given, by mouth, 2 grains each of emetine phosphotungstate, in a gelatin capsule, on an empty stomach. Exactly one hour after this dose, the stomach of each dog was washed out with distilled water and the contents gathered in a flask and tested separately.

Method of testing: The contents were rendered alkaline with ammonia and shaken frequently during a period of approximately one hour. The mixture was poured into a separatory-funnel and shaken with ether, which would dissolve the alkaloid emetine precipitated by the ammonia. The ether-extraction was filtered, the ether evaporated at room-temperature, and the residue taken up with dilute hydrochloric acid. This solution was shaken with ether, so as to free it from fatty and other substances, again separated, then filtered. A small sample was tested with Mayer's reagent, the remainder evaporated to dryness on a steam-bath, then tested with molybdic acid in concentrated sulphuric acid.

Result: Both stomach contents gave negative reactions.

November 8.—The dogs were fed at 3 p. m., and five minutes after the meal each dog was given 2 grains of emetine phosphotungstate, in a gelatin capsule, by mouth. Exactly one hour after this dose, the stomach of each dog was washed out with distilled water, the contents were gathered in separate flasks and tested according to the method described above.

Result: Both stomach contents gave negative reactions.

Thus, emetine phosphotungstate, when administered internally to dogs, either on an empty stomach or shortly after the meal, leaves the stomach and enters into the intestinal tract in less than one hour.

According to these results, emetine phosphotungstate would seem to be a desirable preparation for internal emetine-treatment.

Emetine phosphotungstate offers the following advantages: It is tasteless; it causes no gastroenteritis, no vomiting and no diarrhea when administered in therapeutic doses. The small amount of phosphotungstic acid introduced into the system with therapeutic doses of emetine phosphotungstate apparently causes no harm whatever.

Quinine Phosphotungstate

This salt contains approximately 16.34 percent of quinine. 4.65 grains of quinine phosphotungstate corresponding in quinine content to 1 grain of quinine sulphate, U. S. P. It is a fine yellow odorless amorphous powder. When applied to the tongue, it is first tasteless, but gradually a bitter taste develops. An addition of sodium chloride diminishes this bitter taste considerably. Solubility and chemical properties are the same as those of emetine phosphotungstate.

Animal Experiments, Series 2

Puppy, male, weight 10 pounds. Received 4.65 grains (corresponding to 1 grain quinine sulphate), in a gelatin capsule, three times a day for ten days. There was no visible change in the condition of the animal during or after this course. The result of this experiment would tend to show that relatively large doses of phosphotungstic acid can be administered in the form of this or similar insoluble compounds, without causing undesirable effects. This young puppy received the amount equivalent to approximately 3.9 grains of phosphotungstic acid three times a day for ten days, or a total dose of approximately 117 grains.

The results of the animal experiments mentioned in this preliminary communication are, of course, not sufficient to guarantee a harmless and nontoxic action of the phosphotungstic-acid radical in the insoluble combinations of this nature, but they point toward the possibility of its advantageous use in medicine and encourage further experimentation (feeding and other experiments).

Strychnine Phosphotungstate

Alkaloidal content 23.9 percent, 3.26 grains of strychnine phosphotungstate being equivalent in strychnine content to 1 grain of strychnine sulphate. It is a fine light pinkish-brown odorless and practically tasteless amorphous powder. Solubility and chemical properties are the same as those of the emetine and quinine salts.

Animal Experiments, Series 3

In order to compare the toxicity of the strychnine phosphotungstate with that of the sulphate, these two salts were administered by mouth in proportionate doses to a series of frogs and, later, to dogs. The frogs received the doses in the form of a small tablet (1-2 grain) made of a trituration of the salt with milk-sugar in the exact proportions. The dogs received the pure salts in gelatin capsules.

I. Experiments with frogs recently caught

STRYCHNINE SULPHATE

Weight of frog	Dose Gm.	Onset of tetanus minutes
30 Gm.	0.002	2
30 Gm.	0.001	24
30 Gm.	0.001	13
30 Gm.	0.0005	35

STRYCHNINE PHOSPHOTUNGSTATE

Weight of frog	Dose Gm.	Onset of tetanus minutes
30 Gm.	0.00326 (cor. to 0.001 sulphate)	90
30 Gm.	0.00163 (cor. to 0.0005 sulphate)	180
30 Gm.	0.00163 (cor. to 0.0005 sulphate)	200
30 Gm.	0.0008 (cor. to 0.00025 sulphate)	4 hours

II. Experiments with frogs kept in a tank for 1 1-2 months during the hot weather. They were physically in a poor condition

STRYCHNINE SULPHATE

Weight of frog	Dose Gm.	Onset of tetanus minutes
20 Gm.	0.0005	1
20 Gm.	0.00025	5
20 Gm.	0.000125	10

STRYCHNINE PHOSPHOTUNGSTATE

Weight of frog	Dose Gm.	Onset of tetanus minutes
20 Gm.	0.00163 (cor. to 0.0005 sulphate)	40
20 Gm.	0.0008 (cor. to 0.00025 sulphate)	60
20 Gm.	0.0004 (cor. to 0.000125 sulphate)	hours

III. Experiments with dogs

Strychnine phosphotungstate 0.01 Gm., administered by mouth to a dog weighing approximately 10 kg. produced only very slight symptoms of increased reflex irritability.

Strychnine phosphotungstate, 0.04 Gm., administered to another dog of approximately the same weight produced severe strychnine symptoms with fatal result.

Dog, male, weight 7 kg., was given 0.021 Gm. of strychnine phosphotungstate (0.003 gr. per kg.) by mouth in a gelatin capsule.

Distinct symptoms in three-quarters of an hour after dose, i. e., stiffness of hindquarters, tremor, increased reflex irritability, and so on. First and only convulsion one and one-half hours after the dose. The distinct symptoms lasted approximately three hours. The dog recovered.

Four weeks later, this dog was given 0.0065 Gram of strychnine sulphate by mouth in a gelatin capsule. This dose corresponds approximately in strychnine content to the dose of strychnine phosphotungstate administered four weeks previously.

Distinct symptoms, 25 minutes after dose.
First convulsion, 30 minutes after dose.
Second convulsion, 40 minutes after dose.
Third convulsion, 55 minutes after dose.
Fourth convulsion, 75 minutes after dose.
Fifth (very slight) convulsion, 2 hours after dose.
Sixth convulsion, 3 1-2 hours after the dose.
The dog recovered.

In conclusion. it may be said with reference to these results, that the strychnine phosphotungstate has a more gradual and less toxic action than the sulphate. Whether this is due to the physiologic action of the phosphotungstic-acid radical or simply to the slow and gradual decomposition of the strychnine phosphotungstate in the intestinal canal, and consequently slow absorption of the strychnine alkaloid through the intestinal membrane, is a question which must be further investigated.

If a new idea requires only twenty years or so, to be appreciated, there is no cause for being discouraged.

The new (?) therapists are just beginning to learn the importance of intestinal toxemia. "The popular present-day name for this condition," says Willson in his admirable paper on "Cardiovascular Poisons," "is intestinal stasis, and the surgeons are manifesting a cordial interest in Jackson's membranes, Lane's kinks, and similar obstructions as its cause. Our grandparents knew better."

The Prevention and Cure of Respiratory Catarrhs by the Administration of Vaccines

The Duration of Artificial Immunity and Its Value

By Malcolm Dean Miller, M. D., Wollaston, Massachusetts

IN THE May, 1915, issue of Clinical Medicine, there appeared an article giving my experience, up to about the first of the year, with bacterin-treatment for acute and chronic respiratory catarrhs. Since that time, I have had occasion to treat a great many more cases and meanwhile have been able to check up the duration of immunity conferred in most of my earlier cases. The results are of considerable interest.

Some readers may remember that I began the use of bacterins on myself and on a friend, administering about a dozen injections, up to 2 mils (Cc.) a dose, of a mixed "catarrhal combined" stock bacterin. At the end of that time, I was entirely free from symptoms of catarrh, save for occasional secretion from a mass of adenoid. My friend, however, although repeated microscopic examinations showed at first that there remained only a few pneumococci (these disappeared after a few large doses of a plain pneumococcus bacterin), had sufficient nasal obstruction from spurs and deflected septum to keep up a little nasal discharge. Consequently, I sent him to a good nose-and-throat-man, who operated and gave him good breathing-space in both nostrils, whereupon he continued free from catarrhal symptoms for six months. Then he had an acute cold, but this was cured within forty-eight hours by the injection of just one dose of bacterin. Now, after the passage of another six months, he is obliged to use a handkerchief only occasionally—far less frequently than before he received the bacterin-treatment.

My own immunity lasted fourteen months. During that time, I enjoyed complete freedom from even such slight troubles as sensitiveness to draughts. Then, however, I experienced a relapse, and I felt the symptoms of an attack of a severe cold in the head. So I took a dose of 0.5 mil of "catarrhal combined" bacterin as soon as I possibly could. As usual in acute cases, the effect was almost immediate. The cold ceased to develop overnight, as was threatened, and was practically gone in another day. Notwithstanding, I took two more doses of 0.7 and 1 mil respectively, at intervals of a week, and there was practically no local reaction after the last dose; thus showing a return to immunity.

About five months after that occasion, during September last, I evidently infected myself from a boil, for I then had a "cold" caused by the staphylococcus aureus, but this attack yielded at once to a dose of 400 million of the killed germs of this species. Then again in December I became newly infected, probably from a patient with an oncoming cold who coughed into my face; but, as before, one dose of the bacterin prevented the development of a lasting infection.

Records Show an Immunity of Many Months

Looking through my case-records, I find that all catarrhal patients who had received the bacterin-treatment as long as a year ago last September had enjoyed immunity lasting for from six to twelve months. Sooner or later, however, the immunity has ceased in every instance. As all of these subjects were controlled by constant microscopic examinations, I know that they were quite free from offending organisms in the mucus from nose and throat when they were discharged as cured; consequently, fresh infection from without must have been the rule. One patient discharged himself, against my advice, while he was passing through the stage of increased discharge. I will here explain that this is a condition which I have constantly observed to occur, under massive doses, toward the end of a course of injections. The large doses seem to rout out the deep-seated infection, and, as the vanquished bacteria can be removed from the mucous membrane only by the formation of a mucopurulent discharge, often a great increase in secretion takes place. Invariably, however, if the dosage is pushed to the maximum and persisted in until no longer any local reaction is observed following the injection, the germs finally disappear from the secretion, while the secretion itself becomes normal in amount. But, I must admit, even the patient in question, who quit before that point, became cured, and his nasal condition cleared up without any further treatment, after the lapse of a few

weeks—at least so far as symptoms were concerned.

The most rapid results (i. e., from fewest injections) occured in the case of persons who did not mind the inconvenience of somewhat severe local reactions following a doubling of the dose (that is, up to twice the recommended amount), repeated once a week. In most cases, the increase was about 0.25 mil (Cc.) at each time, without causing much discomfort to the patient.

The importance of mechanical obstruction as a cause of continued discharge is demonstrated by three cases, still under observation. These patients have spurs, deflected septa, polypi, or other obstruction, and in all there is kept up a constant discharge, which repeated microscopic examinations have proved free from germs since the conclusion of their bacterin-courses. All of these patients will have to go to the rhinologist, for operative work, to insure permanent results.

Those patients who attended to the local treatments faithfully also got well in much shorter time than those who neglected them. This is what we might expect when we remember Wright's caution, that it is necessary to induce local hyperemia, if possible, in order that the products of the action of the bacterin shall be carried to the infected area. The consistent use of the hot alkaline nasal douche is most important.

No less important, however, are the general measures that were emphasized by me in my former article. Nuclein, alone or in combination with the triple arsenates or as the nucleinated phosphates, is needed in practically all catarrhal conditions. Readers of this journal hardly need to be reminded of its efficacy particularly. in throat infections, Used at the very onset of a beginning tonsillitis, hourly doses of 4 or 5 minims of the nuclein-solution—the tablets dissolved in the mouth—seldom fail to abort the infection. Nuclein and calcidin, in hourly dosage, constitute the best general prescription for all acute infections of the nose and throat. The additional administration of a single, medium, dose of a good mixed catarrhal bacterin will insure results in those cases which might otherwise develop in spite of the medicine.

Value of a Limited Immunity

What, then, is the value of immunizing against catarrh if the immunity lasts only a year or less? The answer, it seems to me, depends largely upon the patient's idea of values. Some people may feel that it is not worth the trouble, discomfort, and cost; while others, who have suffered more, and who face the certainty of a constant succession of recurrent colds the year around, would purchase a few months' freedom at any price within their reach. Surely, if one can begin treatment in the autumn and then, by receiving a few injections, go through the winter and spring free from attacks of acute colds, it is worth the cost and temporary discomfort.

Thus, for example, a physician—a friend of mine—has six or eight weeks' respite between attacks, then has an acute cold that lasts two or three weeks under drug-treatment and often incapacitates him so greatly that he has to secure a substitute. Then he gets fit for work again. Yet, this doctor is "afraid" of bacterins. Were this man to receive just once the relief afforded, at the start of an acute relapse, by a timely injection of the bacterin, he probably would come to think—just as I do—that *it is worth* being immunized, and thereafter be reimmunized as often as the protection runs out. It would save him hundreds of dollars paid to temporary assistants; aside, entirely, from his personal comfort.

As for acute colds, I have yet to see a case which did not respond promptly to a single dose, even after the cold had lasted for several days. A second or third dose invariably prevents complications, such as throat or bronchial involvement. Often the immunity from two or three doses is sufficiently marked to prevent the contracting of a second acute cold during the same winter.

The Proper Mixture of Bacterins

Numerous microscopical examinations have demonstrated that it is advisable to stain two specimens of nasal and two of laryngeal discharge, if obtainable. One should be treated with Loeffler's alkaline methylene-blue, steaming over the flame for thirty to sixty seconds; the other, by the Gram method. Examine in a water-mount, to demonstrate capsules on pneumococci and Friedlander's pneumo-bacilli.

Pneumococci are practically always present. influenza bacilli are occasionally seen. Once in a while, a pure culture is encountered. Usually, there are present from three to five different organisms. Consequently, a good mixed bacterin should be kept to hand. This mixed bacterin should be employed in all acute cases, without waiting for a microscopic examination; for the remedial effect is good in proportion to the earliness with which it is administered.

The vaccines in question, because of their local reaction, are valuable for diagnostic purposes and for determining the end point. For instance, I am just discharging a case of ulceration of the cervix uteri and chronic cystitis caused by an old gonorrheal infection and complicated by the presence of colon-bacilli and various pus-cocci. At first, a dose of bacterin caused an intense local reaction. The last two doses caused a slight and no reaction, respectively. Simultaneously the urinary sediment has become free from pus-cells, bladder-cells, and bacteria, and the vaginal mucus no longer shows gonococci, colon-bacilli or pus-cocci.

To sum up, I believe that in all acute infections bacterins should be employed early and in good dosage, and repeated in increased dose as soon as the symptoms grow worse. Thus, for instance, in treating erysipelas, septic hands, boils, and the like, small doses do not hinder the development of the infection; but large doses check and still larger doses will stop the progress of the infection and cause it to recede. So, when the injection of 100 million of the killed microbes daily has little or no effect, then we must increase this to 400 or even 800 million. This refers to the pus-cocci. The same holds good of some other organisms. In acute gonorrhea, as I have previously pointed out, I have been able to abort within a few days every acute case, that has come to me, with three doses of, respectively, 250, 500, and 1000 million. In chronic cases, from eight to fifteen suitable doses are required, starting with smaller ones, then working up to about the same maximum.

Furthermore, I believe that artificial immunity in respiratory catarrhs should be secured in the fall by all persons subject to recurrent colds. Most of those who experience the relief will be glad to repeat the immunizing course as often as their immunity runs out.

Nonoperative Gynecology

By WILLIAM RITTENHOUSE, M. D., Chicago, Illinois

Professor of Obstetrics, Loyola University

EDITORIAL NOTE.—This is the fourth in the series of articles upon nonoperative gynecology which Professor Rittenhouse is contributing to this journal. This is a topic in which every general practitioner is interested; therefore we believe that every succeeding instalment of this series will be eagerly welcomed by every reader of this journal. Professor Rittenhouse will be glad to answer any questions, and we hope that the series may bring out many comments.

[*Continued from the September issue, page 753.*]

Sterility

THE causes of sterility are many, among which we may mention the following:

1. The ovaries may be so diseased that they produce no ovules or else diseased ones. This is said to occur in some cases of syphilis and of ovarian cysts. It is not probable, however, that the cause of barrenness often lies in the ovaries, for they are organs of great vitality. A very small amount of healthy ovarian tissues remaining after mutilation or disease may be quite enough to produce normal ovules. We occasionally hear of a patient who has undergone ovariotomy surprising herself and her doctor by becoming pregnant. A tiny fragment of the ovary had remained behind.

2. The cause of sterility may lie in the fallopian tubes, when they have been occluded by disease, accident or malformation. The barrenness of prostitutes no doubt is mainly due to salpingitis, the result of gonorrheal infection. I am informed that there are surgeons who do a profitable business in ligating these tubes for women who regard sterility as a very desirable condition.

3. A very common cause of sterility is found in the endometrium itself, when it is in the condition usually called endometritis, but which would be described more correctly as atrophy of the mucous membrane of the womb. The manner in which an impregnated ovum becomes imbedded in a healthy endometrium is quite analogous to that in which a grain of wheat takes root in fertile soil. When, however, an ovum enters a uterus the lining of which is thin, pale, and anemic, its chance of taking root is poor, just like the seed, in the parable, which fell by the wayside and upon stony ground.

4. In some cases, pregnancy is prevented by the condition of the internal os. There may be a stenosis, which renders the escape of menstrual fluid difficult and painful and also prevents the spermatozoa from entering the uterine cavity. The same result may be produced by extreme flexion. When the uterus is sharply anteflexed or retroflexed, the

body and the cervix are at right angles to each other, the effect on the internal os being like that of "kinking" a garden-hose, for example; the passage is occluded.

5. In endocervical catarrh, the plug of mucus may be so tenacious as to prevent spermatozoa from entering the uterine cavity. I believe this to be a rather frequent cause of barrenness.

I have seen it stated that hyperacidity of the vaginal secretion may cause sterility, by killing the spermatozoa before they can make their way into the uterine cavity, and that the trouble can be remedied by using an alkaline vaginal douche just before coition. I have never met such a case or, if I have, I have failed to recognize it.

Sometimes the failure of a wife to have children is the fault of the husband. I believe the percentage of such cases to be very small, still, in an obstinate case of sterility, this possibility should not be overlooked. The semen may contain only dead spermatozoa or it may fail to penetrate sufficiently far into the vagina, owing to premature ejaculation or to hypospadias. For the former condition, little or nothing can be done. The second is not much more promising, although tonics and cold bathing may be of benefit. For hypospadias, a surgical operation should be advised or else artificial impregnation may be tried.

There is another class of alleged causes of sterility, which might be called psychological. The belief prevails to some extent among the laity that a woman will not conceive if she has no passion and experiences no orgasm. But there is abundant evidence to the contrary.

There is also a much more common belief that, while a marriage between two given persons may be childless, yet, both the man and the woman might contract a fruitful union with a different partner, and in corroboration the case of Napoleon and Josephine is quoted as proof. Although it is true that these two royal personages had no children together, while each had issue with a different mate, this does not prove that children were impossible to them. True, they lived together thirteen years; nevertheless, we see cases where a couple live together unfruitfully for more than thirteen years and eventually have children after all.

I had a case in my own practice, where a couple had their first child sixteen years after marriage, and another where the first child was born a year after marriage and the next pregnancy did not occur until eighteen years later—when the wife tried to make up for her tardiness by presenting her husband with twins. If the first-mentioned couple had been divorced at the end of ten years and had each married again, they, too, like Napoleon and Josephine, they might have been quoted as proof that "affinity," or the absence of it, is a mysterious factor in determining, respectively, fruitfulness and sterility. These two cases of mine suggest a phenomenon which has often been observed, namely, that women who have been sterile during most of the childbearing period sometimes exhibit a revival of sexual activity just before the menopause.

Prognosis and Treatment

The prognosis in female sterility depends greatly upon the etiology, and, since it is impossible always to be certain of the cause, we seldom are able to promise the patient a positive cure.

The first thing that should be insisted upon is, a thorough investigation of the case, both by physical examination and inquiry into the history. This may enable the doctor to form in his own mind some idea as to the probabilities of a cure, but that idea will seldom be definite enough to justify him in offering the patient a rose-colored prognosis. Frankness is best in the long run, and the patient should be given to understand that, while few cases are entirely hopeless, a certainty of cure cannot be promised. In my own experience, success has been attained in over 50 percent, but this includes only such cases as seemed promising enough to start on a course of treatment. The ones that seemed hopeless from the first were frankly told so.

If a woman has had gonorrhea, with or without salpingitis, and has been sterile for several years after, the prognosis is poor.

There is a form of leukorrhea which usually indicates a hopeless case. There is not much discharge, but what there is clings to the vaginal wall in the form of flaky curds. This condition I believe to be due to a form of endometritis in which the uterine mucosa is more or less atrophied. I have never found any form of treatment capable of restoring its activity. In other forms of endometritis, in endocervicitis, in stenosis of the os internum, in flexion either backward or forward, there is always a reasonable possibility that the sterility may be overcome.

Owing to the uncertain etiology, the treatment must often be somewhat empirical, but it should be broad enough in its scope to cover all the contingencies apparent. The

three most frequent indications are: to correct endocervical cararrh, to dilate a stenosed os internum, and to make such applications to the endometrium as will tend to stimulate it to resume normal activity.

If I find present in the external os the characteristic plug of catarrhal mucus, I treat this condition first, as described in a previous article. When the endocervicitis has been controlled, I inform the patient that I am ready for the next step, which will be a month's treatment, beginning about three days after the next menstrual period and repeated every five days until just before the time for another period. At the first sitting, I endeavor to get a dilator through the os internum—of course, under careful asepsis. I begin with the smallest size necessary to effect an entrance without using violence, usually a No. 5 or 6, American gauge. This is about the size of a small wheat-straw. I prefer a steel dilator shaped like the sound used in the male urethra but having less curvature.

When there is no flexion of the uterus and the stenosis is not intense, the size of the sound named can usually be passed, with a little patience, by steady moderate pressure. Regard must be had to the proper direction; that is, it must be ascertained whether the uterus is anteverted or retroverted.

I should have stated that I use a bivalve speculum, and this helps somewhat to bring the uterus into line. I much prefer using the speculum to introducing the sound on the finger without a speculum. The sound is lubricated with euarol (thymol iodide in oil solution). It is easier to keep the dilator aseptic, and easier to tell when it passes the os internum. By winding a few fibres of absorbent cotton around the dilator, 2 1-2 inches from its end, we have a landmark the approach of which to the os externum will announce the entry of the instrument into the uterine cavity.

If with reasonably prolonged effort the sound fails to pass the internal os, I seize the cervix with a tenaculum forceps so as to make counter traction. This may seem rather heroic if done without an anesthetic, but uterine tissue is not very sensitive and, if the patient has been told that she will be hurt some and especially if she has not seen the tenaculum, she will usually not complain. But, if she has caught a glimpse of that instrument, the idea of "putting hooks into her flesh" may be too much for her fortitude. As a matter of fact, the cramping pain caused by passing the dilator through the os internum is more severe than the sharp sting of the tenaculum in the cervical tissue. Where much flexion exists, the tenaculum is usually necessary—the traction which can then be made helping to straighten the uterus and facilitating the entrance of the dilator.

Once the dilator has passed, it will be comparatively easy to introduce the next size, and perhaps a third. We are then ready for the next step, namely, an application of whatever drug has been selected for the purpose.

I wrap the end of an applicator firmly with absorbent cotton, dip it in euarol and swab the interior of the uterus thoroughly. The manner in which the wrapping is done is of importance, for, if done unskilfully, it may not enter readily, or, still worse, it may strip off the applicator and remain in the uterus. While this accident is not very serious, it may, nevertheless, cause the patient some discomfort and the doctor some anxiety before the cotton comes away. The wrapping which I have found most satisfactory should not be short and thick, but should cover at least two inches of the applicator, uniform and a little thinner than the largest dilator used, very firmly wound, and having only a small brush of loose cotton at the end. I often have to wind several before I can get one to suit me.

Attention to apparently trifling details is the price of success. Euarol for the application has given me good results, and is not as painful as iodine, which I have also used to some extent. When I use iodine, I prefer a saturated solution in liquid petrolatum, in place of the tincture, which latter is so astringent that the swab does not readily pass into the uterus.

When this treatment has been repeated every five days for a month, it should be suspended. Pregnancy may follow the next menstrual period, and to continue the treatment in that case would cause abortion. If menstruation continues regularly after one or two months' observation, the treatment may be resumed for a month, followed by the same period of waiting. I have been successful in some cases after a month's treatment; in others, only after two or three. As a rule, if no results are obtained after three months of treatment, with the above interval between, I advise a curettage (under anesthesia), using a sharp curette, followed by the application of iodized phenol. This will be followed by what is practically a new uterine mucosa, one that is favorable to impregnation, and I have seen success in several cases. If the woman still remains barren, her case is hopeless.

In all cases of sterility, the woman should be told that conception is most likely to occur the first day or two after a menstrual period.

What the General Practitioner Can Do in the Treatment of Chronic Diseases

By George F. Butler, M. D., Kramer, Indiana

Medical Director of the Mudlavia Sanitarium

(*Continued from October issue, page 849*)

Doctor Meylan's Testimony

DR. George L. Meylan, medical director of the gymnasium in Columbia University, has written very sensibly on rest and recreation as follows:

"All changes from rest to activity or from activity to rest are made slowly when nature is allowed to have her own way. Attempts to change suddenly from inactivity to vigorous muscular work bring on severe distress of the circulation and respiration; rapid eating after a long fast inevitably results in acute indigestion; sudden awakening from sound sleep causes general discomfort; an abrupt change of temperature, such as occurs when jumping into cold water, usually brings on cramps of the muscles, and occasionally causes sudden death.

"Judicious regard for this physiological law is essential to physical wellbeing and efficiency. The common practice of taking a cold plunge-bath immediately after rising is absolutely contrary to the laws of physiology and hygiene. The effect of the cold water is, to stimulate all the body-functions to sudden and vigorous activity and also to dissipate temporarily the sensations of left-over fatigue not removed even by sufficient rest. The exhilaration produced by the bath accelerates the expenditure of nervous energy for a few hours and is followed by a reaction in the form of lassitude and depression. It is far better to allow the various body-functions to change gradually from the relative inactivity of sleep to the full activity of work.

"In order to avoid the dangers of excessive fatigue, sleep is indispensable, but there are other ways of securing rest. Some temperaments derive much benefit from occasional periods of complete idleness, other temperaments, more nervous and restless, get no satisfaction from being idle. Continuous application to one form of work is much more fatiguing to nerve and muscle than is varied work. I have seen business men and students come to the gymnasium, all fagged out from five or six hours of mental work, get into various forms of muscular work with zest and energy. In a model boys' school, famous for the rapid progress of its students, the boys alternate periods of study with short periods of active play. The principle involved here is, that, by changing from mental to physical work or from one form of mental work to another, the individual is able to accomplish a larger amount of work with less fatigue than by working continually at the same kind of work.

"One of the most salient characteristics of our modern life is, the increasing amount of leisure time for recreation made possible by the shortening of working-hours. The advent of specialization, labor-saving devices, the telephone, telegraph, and automobile make it possible for all classes of people to do more work in less time than before. But work is more intensive and consequently more fatiguing. The result of these changes is, a greater need for relaxation and more time available for recreation and pleasure. The proper utilization of leisure time has much to do with health, efficiency, and happiness.

Importance of Play and Outdoor Life

"Play is generally considered as belonging to childhood only, but it is really a vital part of life at all ages. The need for recreation and play is satisfied in various ways. Sedentary workers derive the greatest benefit from outdoor physical recreation, such as golf, tennis, fishing, hunting, collecting, and photography. Leisurely reading of the treasure stores of literature, music, and parlor-games also afford a certain amount of mental relaxation from daily work.

"The outdoor avocation or hobby has more in its favor than any other. It is readily procurable in 'doses' suitable to any temperament or temper and adjustable likewise to the size of any pocketbook. The essential point with most persons is, to make a beginning, and to acquire a desire for acquaintance with the birds, familiarity with the procession of the wild flowers or the discovery of beautiful bits of scenery that may be reproduced by the camera.

"Many people who realize the importance of outdoor recreation neglect it because they have not formed the habit of making

use of weekends and holidays for that purpose.

"There are innumerable ways of getting the benefit of outdoor recreation while leading an active city life. Even in New York City, where the conditions are perhaps the least favorable for getting out into the country easily, the problem is solved in various ways. There is a group of professional men who are organized as a fresh-air club. They make up a schedule of walking-trips during the autumn and spring, and skating parties during the winter. They meet at the railroad station Saturday afternoons, ride out ten or twenty miles from the city, walk from five to ten miles across the country or up a mountain, spend the night at some country inn, walk ten to twenty miles on Sunday, and return Sunday evening, invigorated and ready for another week of hard work.

"Another group of my friends go off in a motor boat, either up the Hudson River, down the bay or into Long Island Sound, eat and sleep aboard, and return Sunday evening. Two teachers of my acquaintance spend Saturday afternoon and Sunday canoing up the Hudson and camping out at some of the many beautiful spots along the palisades, between New York and Peekskill.

"In the vicinity of every city, opportunities for physical recreation are available in the open country, woods, hills, lake or stream. A very essential point to remember in this connection is, that frequent short periods of outdoor physical recreation are far more beneficial to persons working than is one whole month's vacation following eleven months of continuous application.

"The value of frequent outings in the country is not alone beneficial to physical health; the effect upon the mind is equally good. The mind is rested and refreshed by a change of surroundings, seeing new faces, eating different food, sleeping in a strange bed. The worries and troubles are forgotten and the mind regains its elasticity and freshness for clear thinking and efficient work.

"Weekends and occasional holidays serve a good purpose, still, most people need a longer period of rest and vacation about once a year. Those who disregard the need for an annual vacation and work continuously year after year furnish the recruits for nerve-specialists and sanitariums. A story in the newspapers, describing the strenuous life of a young man twenty years old, who by continuous application without any vacation had earned his election to the presidency of a large New York bank, brought him a large number of circulars from sanitariums for neurasthenics, is characteristic.

"The rapid development of the summer-vacation idea within recent years is the natural result of the increasing demand for intensive mental application in business and professional life. The judicious use of the summer vacation serves to restore the individual to a normal physical and mental state after months of more or less unhygienic living.

"Camping, cruising, touring, and tramping afford the largest amount of recreation and recuperation to tired-out mental workers.

"Summer-hotel life, with its idleness, rich food, and much dressing, strenuous traveling and sight-seeing, is not a desirable form of vacation for sedentary workers. A simple active outdoor life in the country or on the water is far better to restore vitality, revive ideals, and help the individual to live a broad, happy, and effective life."

Indigestion

Imperfect digestion is one of the commonest disturbances to which the human body is subject; nevertheless, science knows but little of its pathology, and, to frame an accurate definition of its precise nature, probably is not possible at this time. The manifestations of indigestion by no means are confined to the stomach, for, often every part of the alimentary canal and the secreting glands connected therewith is involved; while in what used to be designated nervous dyspepsia the origin of the functional disturbance is not in the abdominal viscera at all, but in the higher nerve-centers.

Therefore, for the purposes of medicine, the chronic condition known as indigestion has been broadly divided into two great classes of socalled "dyspepsia"; namely: the one in which there is a deficient secretion of gastric juice, amounting sometimes, almost to suppression; the other, in which there is too much acid in the stomach, due either to the hypersecretion of hydrochloric acid, or to fermentation of the food-constituents and consequent formation of lactic, butyric and acetic acids. Besides these two general divisions, a third one is recognized, although this condition is met with but rarely. Here, the food is retained in the stomach only a short time, passing rapidly through the pyloric orifice into the intestine, where it stimulates peristaltic action and induces a copious evacuation immediately following each meal.

However, for all practical purposes, we may consider that dyspepsia is due either

to a lack of gastric juice or to an inferior quality of the secretion whose peptic properties are impaired, but it is difficult to determine, without resorting to the laboratory, which of these pathological states of the gastric secretion obtains in any particular case.

Without a diet that will furnish the requisite nourishment and at the same time not overtax the digestive powers, not even with the highest medical skill can we hope to effect a permanent cure of "dyspepsia," Sometimes the appetite is perverted and requires to be trained back into normal channels; a course of properly regulated fasting often is conducive to this, and is, in addition, an excellent preliminary measure before a radical change of diet is undertaken.

The Starvation Theory Fallacious

Many persons, having been the "victims" of certain experiments, have the idea that the less one eats the better, and their minds first will have to be disabused of this notion before any progress can be made in restoring them. It is as unwise to go to bed hungry as it is to eat from habit alone, in the face of disinclination. If appetite is lacking, the sufferer should take more exercise in the open air. Improved nutrition brings increased energy, and the patient is not in a satisfactory condition until this sign—increased energy—becomes manifest, even though he may have put on flesh.

A common mistake committed by dyspeptics is, that they attempt self-treatment by cutting off articles of diet, now one and then perhaps another, in that way often diminishing their strength without lessening their trouble. Dyspepsia is serious enough, certainly, to demand the attention of a skilled physician.

How to Eat

The patient should eat slowly, and thoroughly masticate and insalivate the food before swallowing it, a frequent cause of dyspepsia being hurry at meals. A certain time should elapse between eating and the return to work, especially with the dyspeptic. Rest before eating is another important factor, it being especially desirable to rest a few minutes previous to the evening-meal, for this is the time when the stomach and the body in general are likely to be nearer exhaustion than at any other hour.

Although the experience of mankind shows that, as a rule, at least four or five hours should intervene between meals, there are conditions under which it is better that something should be taken every two hours or so, as, for instance, in fevers, when the waste of the body is highly increased; but, when food is eaten as often as this, it must be in small quantities, otherwise indigestion will follow.

Always rules should be laid down for the patient as to when, how, and what he should eat.

Liquids at Meals

Only very little fluid, or none, should be taken at meals, since the effect of it will be, to dilute injuriously the saliva and gastric juice. Liquids may be taken immediately after the meal, although the best time is an hour before the meal; and it should preferably be plain hot water. This washes out of the stomach the remnants of the previous meal, while much of the water becomes absorbed and thus prevents thirst at the table. Moreover, the water already absorbed makes possible the free secretion of saliva and gastric juice, whereby digestion is accelerated.

An exception to this rule is, that, if the stomach is actually dilated and more especially if this is due to pyloric obstruction, even hot water will remain in the stomach for more than an hour after ingestion and, so, will interfere with digestion instead of promoting it.

Proteids and Carbohydrates

It is a common practice, based on ages of experience, for the English-speaking world to separate the proteid from the farinaceous meals, or else to join them in given proportions, taking the farinaceous part, with only a small amount of proteid, for breakfast; a proteid meal for luncheon; perhaps a little farinaceous food in the afternoon; and another proteid meal in the evening.

Mastication

Always the food should be well masticated. For young persons who have good molars, this is not difficult, but others who have lost teeth should give special attention to this important matter, keeping in mind the fact that, in order to reduce their food to a given state of consistency, they will be obliged to chew it many more times than they used to do. In dyspepsia, it should be insisted upon that all food be masticated until it has the consistency of cream, so that it would pass through a fine sieve without leaving a residue.

The "fletcherizing" of food has its value, providing it is not overdone.

The Body Must be Kept Warm

Special warmth is required in four different places on the human body, namely, the abdomen, the back of the neck, the shins, and the feet, and dyspepsia often is due to exposure of these parts. In cold weather, there is always a draught between the room-door and the heating apparatus, and to sit in this current of cold air often means to acquire dyspepsia—a dyspepsia that is usually laid to some food recently eaten. If one is compelled to remain much in this draught, the feet should be protected by thick shoes, especially those with cork soles, the legs by woolen stockings and gaiters of leather or cloth, and, if necessary, a high collar or muffler may be worn around the neck. But the best way is, to avoid the draught, when possible.

Abdominal Support

An apron of chamois-skin and flannel, or a belt, should be worn around the abdomen in such a way that it gives support to the body, as well as warmth. Support is especially demanded when the belly is pendulous and the abdominal muscles are lax. The belt may be made of flannel or knitted wool or a still more comfortable one may be made in the shape of a silk scarf, and this should be long enough to wind three times around the trunk. The belt may be provided with a pad or truss in case of floating kidney.

Treatment of Menorrhagia, With Especial Reference to the Use of Mammary Extract*

By W. F. Von Zelinski, M. D., Sc. B., Chicago, Illinois

Lecturer on Materia Medica, Loyola University; Consulting Physician, Municipal Tuberculosis Sanatorium; First Lieutenant Medical Reserve Corps, U. S. Army" Chicago, Illinois

IN ORDER that you may have a clear understanding of the subject with which I am to deal this evening, I want to present a classification of hemorrhages from the uterus from the standpoint of etiology in a way somewhat different from that found in the usual textbooks, which latter, so far as I have been able to discover, are rather misleading.

Generally speaking, hemorrhages from the uterus are considered under two headings—metrorrhagia and menorrhagia. Metrorrhagia should be classified as a hemorrhage from the uterus having its etiology independently of ovulation and menstruation. Menorrhagia, on the other hand, should be noted as a condition most usually intimately connected with the maturing of the ovum. Irrespective of the duration or intensity of a uterine hemorrhage, even though it last for weeks, when having its etiologic factor in the process of ovulation, it must be considered as a menorrhagia. So far as we know now, normal ovulation induces what we recognize as menstruation, and under normal conditions it controls both the duration and the amount of flow.

I am aware that there are conflicting theories as to the role played by the ovaries in the induction of the menses. By that I mean, whether ovulation, or development and regression of the Graafian follicle, is concerned, or whether it is owing to an internal secretion from the ovary, a socalled hormone. There is, however, no doubt that the presence of the ovary is necessary for the production of menstruation, irrespective of whether the ovary be in its normal anatomic position or be transplanted to another part of the body.

Of course, I recognize that *a priori* a uterus of normal structure and blood supply must be postulated for the production of a normal catamenia. Deviation from what we consider a normal menstruation for a particular individual brings us to the determination of the various factors that have to be noted in the diagnosis of a menorrhagia. Several must be taken into consideration. Assuming the menstrual flow to be of greater severity or of longer duration than is usual for a given individual, we must determine, first, whether there is an abnormal condition of the uterus, and, second, whether there is a disturbance in the function of the ovaries, or both.

For example: Owing to displacements, subinvolution or other cause, a uterus may be

*Read before the monthly meeting of the Alumni Association of Bennett Medical College.

hyperplastic both in its body and in its endometrium. This is given as one of the most prolific causes of menorrhagia. We may find here, however, that the periods are only of medium intensity and duration, and we may then surmise that this condition has some inhibitory influence on the menstruation-inducing function of the ovary. Although it is a very common occurrence to find a hyperplastic condition in menorrhagia, this alone will not produce the pathological condition under consideration. On the other hand, we may find a most severe menorrhagia in what, to all intents and purposes, is a perfectly normal uterus. Here, of course the assumption would be that we have to do with a disturbance in the ovarian function pure and simple.

Some Objections to Curetting the Womb

I mention this particularly, to emphasize the careful consideration that must be given to the cause of hemorrhage from the uterus. To concentrate treatment on the uterus when it is not directly at fault, it goes without saying, is very irrational. I call attention to this self-evident fact, because we do not have to hark back very far to the time when most cases, if not all, of uterine hemorrhage were treated with the curette; not once, but any number of times within a short period. Often the results were not only nil, but in many instances positively harmful. Acute inflammatory processes were further complicated, while repeated curettement caused the formation of scar-tissue, which later led to acutely painful dysmenorrhea, and, in cases in which pregnancy followed, to difficulties during the puerperium.

Like every other therapeutic measure, curettage has its positive indications. In certain cases of menorrhagia, it must be admitted, it is of value. However, Busse, of Germany, states that lasting results—that is, control of hemorrhage—have been obtained in but 10 percent of cases following curettage. All of us know of innumerable cases that were curetted for hemorrhage from the uterus, irrespective of its cause, with brilliant temporary results, and we also know of many patients who were finally persuaded to submit to a partial or complete hysterectomy. In the case of those who were in or past the menopause, the future effects of such measures were perhaps not so serious, but in the case of the younger patients the final results of such a radical procedure were, for obvious reasons, not so satisfactory, except as they removed the cause of their former disagreeable symptoms; a case in point where the remedy is worse than the disease.

According to my experience, curettement is of value in chronic endometritis following abortion, in subinvolution (*post partum* or *post abortum*), and in chronic diffuse or polypoid hyperplasia of the endometrium. In such cases, the enlarged and thickened uterus is often restored to a normal or nearly normal vascular organ. Here, the curettage not only removes the diseased tissue but has a stimulating effect and may thus remove the cause of the overstimulation of the ovaries and, of course, in connection therewith or as an aid thereto, all the local applications, such as formalin, silver nitrate, iodine, hot douches, and the internal remedies, such as ergot and hydrastis.

There is another group of cases classified under menorrhagia, to which I would call your attention, namely, those accompanied by acute inflammation. To some it appears that the inflammatory condition of the uterus is the cause of the hemorrhage, although in the majority of instances the exciting cause will be found in a disturbance of ovulation induced by inflammation of the uterine adnexa. These cases, I might mention in passing, must never be treated locally or mechanically, but according to the well-known principles of rest and by means of antiphlogistic measures, such as the application of ice-bags. The usual styptics are of little or no value here.

Among other measures that have been employed in menorrhagia, aside from those I have referred to, I may mention extirpation of the ovaries and roentgenization. I have heard more than one roentgenologist urge the use of the Roentgen-rays in menorrhagia, and cite as examples many cases that they had treated successfully; but there is one thing which I never have heard them mention, namely, that it has been proven experimentally that a fecundated ovule from an ovary previously subjected to Roentgen-rays has produced teratoid births. From this we can see that the application of such treatment should always be guided by caution, because of its possibilities for future harm.

Mammary Extract for Menorrhagia

In the treatment of the conditions discussed, that is, the various groups classified as menorrhagia, we have all felt the need of a simple remedy or plan of treatment, that is, a remedy that will not disturb or cause permanent changes in the sexual organs. To Professor Hoehne, of Stoeckel's clinic at Kiel (from whose writings most of the material for

this paper has been gathered), must be given the credit for working out such a treatment on a scientific basis. I refer to the use of extract of the mammary gland. However, mention of what we might call "mammary therapeutics" was first made in 1896, by Robert Bell, of Glasgow, who proved the physiologic influence of extracts of cows' udders and indicated their therapeutic value.

It seems, from the experience of Hallion and Battuaud and others, that the mammary hormone is antagonistic to the ovarian hormone. Changes in the proportion of these hormones result in disturbances of function. This suggestion is confirmed by the fact that mammary extracts have been used by Hoehne, in more than 50 cases, in conditions where he assumed that there was ovarian overactivity and uterine underactivity

Pochon states that the administration of the mammary hormone has a tendency to cause uterine depletion, and, according to Battuaud, this form of medication has proved valuable in young girls and in the metrorrhagia of the climacteric. He also speaks of its value in hemorrhages which are the result of uterine oozings during the menopause but not associated with malignant growths.

A number of writers, Hoehne in particular, have called attention to the possibility of diminishing excessive menstrual flow and curtailing its unusual duration by means of mammary extract. It is also asserted to be useful in lengthening abnormally short intervals between the catamenia, restoring the normal rhythm of menstruation in frequency, amount, and duration. Luncz especially credits this method of treatment with remarkable efficacy and emphasizes its absolute harmlessness.

Various Views Cited

According to Harrower, in his "Practical Hormone-Therapy," a study of references to the subject cannot but impress one with the antihemorrhagic and sedative effects of mammary opotherapy in cases of functional overaction of the pelvic organs; still, it should be emphasized that preparations of this character are not styptics, as a study of their physiologic action shows. Indeed, if one were to believe all that is said by Harrower, concerning mammary extract, he would find it recommended for the treatment of uterine fibroids and other pathological conditions which we believe can be handled properly only by surgical means.

Harrower, quoting Feodoroff, mentions a statistical report of the use of mammary extract in uterine fibromyomata, in which a reduction in the size of the tumor was noted in 53 percent of all cases treated; hemorrhage and profuse menses were controlled in 83 percent; the pain usually present in the development of the tumor was abolished in 40 percent; in only 14 percent was there total failure.

A Personal Experience

I would lend my support to these views, even though my observation were limited to fewer cases. In my own practice, I have had most excellent results in cases of preclimacteric menorrhagia; also in other cases of menorrhagia, of which latter I will mention one example. It is that of an unmarried woman 32 years of age, a cleancut case of ovarian dysfunction, with absolutely no indication of any organic lesion or neoplasm. The patient flowed for two and three weeks at a time, at intervals of two and three weeks. All approved methods of treatment had failed; by which I mean the use of styptics and the curette. Two courses of treatment with mammary extract, 5 grains three times daily for two weeks each time, relieved the trouble in a most satisfactory manner.

I am personally convinced that mammary gland is one of our best remedies for the control of hemorrhage due to ovarian dysfunction, and I believe that it is the best single remedy at our command. However, in my study of this remedy I have found references to its use as an oxytocic agent, several authors reporting that injections of mammine had an undeniably abortifacient effect, and stating it as their opinion that the remedy was contraindicated during pregnancy. A sedative effect has also been reported.

The extract has been suggested as a postpartum agent, to influence increased secretion from the breasts; also for its decongestive effect upon the uterus, in hastening involution and return of the organ to the normal. However, its use as a galactagog does not seem to be sanctioned by experimental work; for, Ott and Scott, of Philadelphia, have shown that, while the amount of milk secreted may be increased for the time being, the total quantity for twenty-four hours can never be augmented by this means.

I present this matter, not only because of my own belief in the efficacy of mammary extract, but because of the very glowing reports of foreign observers, who have had greater opportunity to study the value of this preparation than I have, and because the American medical literature is greatly lacking in this subject.

The Relation of Sexual Weakness to Rectal Disease

By W. F. Schrader, M. D., Fort Wayne, Indiana

I have not, at any time, read a conviction expressed by any writer regarding the intimate relationship existing between sexual disturbances and rectal disease, although this is of frequent occurrence, as has been evidenced to me in a brief practice specializing in rectal diseases. I do not believe that it is realized by many to how great an extent an irritation in the rectum may be responsible for some sexual variance from health and how often it is entirely overlooked in the treatment.

The most common sexual weaknesses complained of by men leading temperate lives, and who have not at some time in the past been either unwise or unfortunate in paying devotion at the shrine of Venus, are, in many instances, in some way attributable to a rectal disorder, as I have found by investigation.

During the last five years leading up to my graduation in medicine I put in from one to three hours of each school-day teaching in the literary department of schools where the majority of the students were young men. I was perhaps brought into closer contact with the members of my classes than is usual between teacher and pupil, because I myself was in my early twenties. The personnel of my classes changed with each semester, yet, acquaintanceship with a great many of these young people continued to the completion of their full courses of study. Quite a number of them made of me their confidant and came to me with their tales of broken hearts or infected bodies, and for advice in various matters of importance to a student.

A number of them worried about having too frequent nocturnal emissions, others complained of lack of control of their passions and consequent embarrassment at times, some of aggravating erethism, while in a few instances incapacity for the sexual act was confessed, although they were sure normal conditions prevailed theretofore and no history of disease, overindulgence or abuse had intervened.

At that time, I began to wonder why these young men, none of them "sports," and many from the farms, where it is supposed the healthiest and strongest are found, should be troubled with such weaknesses as were related to me; for, at that time, I knew little more than they about such conditions, and literature on sex matters wasn't found almost anywheres, as it is today.

After beginning the study of medicine, the number of these complainants increased, and they included older men, some of them married. Then I became more interested in this question.

After my graduation, I was appointed assistant demonstrator in the dissecting room, and I took particular interest in the dissection of pelves; for, I had been encouraged to make proctology a special study by an old gentleman, a pioneer physician who had purchased the right to use in a certain territory the Brinkerhoff pile treatment. He had a big patronage and frequently called me to see some special case or to assist when he needed help. I do not know that he ever inquired as to other ailments of his patients, but a few of them confided to me their sexual conditions and asked whether they could be caused by the piles.

Later, I recalled that a number of my confiding pupils at college had at times told me of blood losses at stool, of rectal protrusions, and of itching, and had diagnosed the presence of piles.

Sexual Trouble in 80 Percent of Rectal Cases

After four years in practice, I took a short course in proctology and then a special course a few years later, but continued in general practice until five years ago, since which time my work has practically been limited to rectal diseases. Consequently, my experience has not been one of great extent, but I have kept careful memoranda and a history of each case treated in these and the earlier years of practice and in preparation for this attempt to write a paper of interest to the readers of one of the best journals of its kind to be found in any country. I was not greatly surprised, because the evidence presented itself so frequently, to find that more than 80 percent of my rectal patients also had some form of sexual trouble.

This list does not include women; for, obviously, it is a more delicate matter to obtain such facts from the women. However, because of the data obtained in a few cases where intelligent, well-educated women were concerned, who appreciated the reason for

my questions, I have no doubt that similar conditions exist in women as well.

In the treatment either of the rectal or sexual class, you are not likely to learn of an accompanying condition unless you question the patient closely. Very rarely have I been told voluntarily of a sexual weakness along with that from which they sought relief.

The reason for this is, the false modesty that so long has obtained, particularly among Americans, about speaking of these parts of our anatomy, as also that so very few persons have a true conception of what normal sexual health should be or the proper functioning of the rectum in health. I believe that the study of sexual and of rectal diseases should go hand in hand and that the physician who specializes in either branch should fit himself to treat intelligently the cases of both.

When we consider the gross anatomy and the contiguity of the sexual organs to the rectum, the intimate interweaving here both of the circulatory and the nervous system supplying them, along with the very evident reflex influences one disordered organ exerts upon another throughout the body, it hardly can be otherwise than that both are impaired if any abnormality exists in either of them.

Perhaps I can not in any other way make plainer the reasons for my belief in the existence of such close relation in these ailments than by giving brief accounts of some cases treated and the results obtained. It would prove tedious should I here enumerate the therapeutic measures adopted in each instance, but, if I succeed in awakening sufficient interest in any reader to cause him to request the same, I gladly shall reply and offer help from my limited experience.

Persons afflicted with hemorrhoids other than that most painful variety, the thrombotic, seldom call for professional care until after home-remedies and advertised cures have been given trial, a period of months and perhaps years having elapsed in nearly all cases.

What Experience Has Revealed

In taking the case history, on my inquiry as to any sexual symptoms, maybe with looks of surprise and shamefacedly some will admit inability to maintain erection throughout copulation for some time past, and this gradually having grown worse up to the time of the examination. Thus, one man told me he had been wholly incapacitated for five years, another gave such a period of more than two years, and both said that in these years there were times when desire became so tantalizing as almost to unbalance reason. They had taken aphrodisiacs, had had electric treatments, massage, and had even resorted to unnatural methods and mechanical stimulation, but without any restorative effect.

The number of the tumors or the state of engorgement in neither of these cases was so great as is sometimes seen, yet, their existence covered a period of several years. However before the tumors had entirely disappeared, in each case an improved sexual condition was observed, and this continued, until capacity and potentiality were restored within three months after completion of the treatment, and there has been no subsidence in either case after periods of thirty-eight and thirty-three months, respectively.

I have found this partial impotency to exist in nearly all sufferers from hemorrhoids, and many of them had been treated and had taken "cures" for restoration of sexual vigor without knowing the real cause of their trouble.

Where it is not a result of venereal or constitutional disease, but piles are in evidence, incapacity will grow less and manifest improvement will set in at once with the successful removal of the hemorrhoids.

In one instance, however, I found a rectal irritation producing an unexpected condition—the exact opposite of incapacity. A professional brother came to me, stating that he had become really brutal in his embraces, that for some time he had noticed a gradual increase in his desire and that during copulation something spurred his action to uncontrollable movements, resulting in pain, if not real injury, to his partner, while he felt an unsatisfied sensation for quite a while after the orgasm and a peculiar pain around the anus.

No lesion was found in the sexual tract, but all crypts of Morgagni were filled with a dry, hardened material and their mucous coverings were quite sensitive. These pockets were emptied, and after all inflammation had subsided coitus was normal, without irritation following.

Another man, 45 years of age, had been advised by two surgeons of good repute that the removal of his prostate gland was necessary for his relief. He complained of inability to reach the climax of coition without great effort, the orgasm being so long delayed; and that, when he gave up the attempt, cloths wrung from cold water had to be applied to subdue the erection. At these times, he suffered pain in the whole body of

the penis, severe at the pubic junction and in the region back of the pubes, and a dull pain at all times along the root of the penis, between the scrotum and anus. His prostate gland was considerably enlarged, but not dense, nor could any nodules be detected; however, on either side it was partly overlapped by an oblong hemorrhoidal body.

This man had never had a venereal disease, was never seriously ill, had a family of five healthy children, and first noticed a change in his sexual condition after an enforced continence of five months during the illness of his wife and her recovery from an operation. With each trial at cohabiting, his condition seemed gradually to become aggravated, and this became the one topic of his thoughts and the only one of his conversation when with a physician or someone in whom he had confided. Removal of the hemorrhoids, a few milkings of the prostate gland, and a course of nuclein and arsenates, as a tonic, restored him physically and mentally.

A husband and wife came to my office together. They were parents of grown children, in fact, there were two grandchildren. Trouble was in the air. After the winter's work as foreman in a lumber camp, far from home, the husband had returned, and soon afterward the wife at times found streakings of blood in his seminal discharges. Accusations of misconduct followed, answered by denials. Time went on, but his condition did not improve. Then followed the wife's refusal to cooperate in the sexual act. The husband was greatly depressed, became morose and sullen, and wordy quarrels ensued at intervals. But he did not seek medical advice until after some person had unwisely counseled the wife to seek a separation and she had entered suit for a divorce.

Then the visit to my office. Their minds had become so poisoned by this time, one against the other, that each now thought only of revenge. Their years of undisturbed, faithful, happy, married life seemed to have been entirely forgotten. He admitted that many times in the past twenty years he had suffered intensely from hemorrhoids, and examination showed a bad state of chronicity. Still, she would not accept my statement that this might be the cause of his present condition. The husband, through anger over being wrongfully accused, allowed the suit to come to trial within a short time. In the time intervening, someone meddled with the court, and a wise and prudent judge frustrated the plans of attorneys, by postponing his decision until after a course of treatment, which he ordered for the man, had been taken and a report of the same made to the court. The treatment restored the man to perfect health. Time, with continued advice from the judge brought about the wife's absolute belief in the innocence of her husband, and "they lived happily together ever after."

Vaccine- and Serum- Therapy in Everyday Practice

IX. Infections of the Mouth and Throat

By W. C. Wolverton, M. D., Linton, North Dakota

[*Continued from October issue, page 885*]

Alveolodental Pyorrhea

IT is only in recent years that the enormously important role of pyorrhea in the causation of metastatic infections has been adequately understood. So much has been said and written, of late, on this subject that we cannot begin to cover the matter in a part of one paper, because, of necessity, the space is limited. Consequently, for a full and complete consideration of the matter, the interested reader is referred to the mass of literature which has recently appeared in medical and dental journals, noteworthy among recent works upon the subject of pyorrhea being the epoch-making volume by Bass and Johns, "Alveolodental Pyorrhea."

In practically all cases of pyorrhea ("Riggs' disease"), microscopic animal parasites known as amebæ, are found to be present in the tooth-sockets affected by the disease, and Bass and Johns have made out a strong case against these minute offenders as the probable primary infective agents in this condition. However, if these amebæ be the primary infective agents, they are soon overshadowed by the secondary invasion of hosts of pathogenic bacteria, among which may be named streptococci, the various staphylococci, the

pneumococcus, and micrococcus catarrhalis, while other, probably less important, organisms present are various spirochetes and vibrios.

As a pathologic condition, pyorrhea is bad enough in itself, causing, as it does, the loss of the teeth and an extremely offensive breath; but, the real importance of Riggs' disease lies in the metastatic foci of infection which travel in its wake. Its connection with follicular tonsillitis, postnasal catarrh, the various infectious processes affecting the respiratory tract, chronic gastritis and enteritis, and the anemias (both simple and pernicious) is now generally admitted; so also are its relations to the various joint infections, many cases of endocarditis, and nephritis.

Too much cannot be said as to the importance of eradicating this disease, just as soon as it is recognized—for reasons which should be perfectly obvious; but we cannot enter into that phase of the subject here. As to treatment, prophylaxis, naturally, is of first importance; and it goes without saying that everyone should regularly make use of a proper toothbrush. Next, if people would have their teeth "looked after" by a dentist every three or at least every six months, they would all be better off both financially and in their health; for, the dentist would be enabled to recognize such conditions as pyorrhea in their incipiency, and treatment could be applied, with a reasonable hope of success in eradicating the trouble.

Once the pyorrhea is established, however, energetic treatment must be instituted promptly. Emetine is the most efficient amebici le known, and may be administered either hypodermatically or by mouth, the former route being preferable. A series of daily injections should be given, the course extending over a period of about a week. This series should be repeated once a month for several months, until the disease appears to be cured; and then at longer intervals, to guard against recurrence.

Besides the internal treatment, a dental lotion containing emetine should be applied, by means of a toothbrush, every evening before retiring. Where the disease has progressed to such a point that the alveolar process has been destroyed extensively and the teeth show no tendency to tighten under treatment, these badly affected teeth must be removed, in order to afford ready access to the pus-pockets; which latter are to be swabbed out with tincture of iodine at frequent intervals, until the trouble is eradicated

As to the bacterin-treatment of the secondary infection, a stock bacterin containing the varieties of microorganisms mentioned in the beginning of this chapter may first be tried. The proper initial dosage is about as follows: Streptococcus, micrococcus catarrhalis, and pneumococcus, 20 to 30 millions each, and staphylococci, 100 millions of each variety. If the dose be adequate, some focal reaction will be quite likely to occur in the way of increased tenderness of the gums and a slight aggravation of any constitutional symptoms present at the time of the inoculation. As long as any of the foregoing symptoms result, or if improvement takes place, the dose should not be increased. In case no improvement follows the administration of a stock bacterin, an autogenous preparation must be resorted to. The proper interval for bacterin administration is from four to ten days.

Acute Follicular Tonsillitis

This condition is due to infection by streptococci and staphylococci, particularly the staphlococcus aureus. The symptoms—such as high fever, chills, headache, backache, sweats, and local swelling and inflammation, with plugs of foul-smelling mucus and pus exuding from the tonsillar crypts—are too well known to need more than casual mention; yet, many unfortunate errors are made in differentiating this condition from faucial diphtheria. However, if one keeps a few differential diagnostic points clearly in mind, there is small chance for error in this regard.

In diphtheria, there is a "false membrane," which is an integral part of the mucous membrane covering the faucial surface of the tonsil, coagulated by the action of the diphtheria-bacillus and its toxin. This pseudo-membrane cannot be removed by the use of a cotton-wrapped probe, without the application of considerable force; and, if this be resorted to, it is prone to leave a raw and bleeding surface. In follicular tonsillitis, the crypts are filled to overflowing with mucus and pus, plugs of which protrude from the openings on the surface of the tonsils; but there is no tendency for these plugs to coalesce and form a membrane. Furthermore, when a membrane originating upon the surface of the tonsils bridges across the soft palate or involves the uvula, the condition may safely be regarded as diphtheria.

Bacterin-therapy in acute follicular tonsillitis has, in my experience, been very efficacious, not only in shortening and lightening the attack proper, but in preventing such

grave complications and sequelæ as arthritis and endocarditis.

I employ a combined stock bacterin containing streptococcus, pneumococcus, and staphylococcus aureus et albus; the initial dosage being from 20 to 30 millions of each of the two former, and from 50 to 100 millions of each of the varieties of staphylococcus. This dosage applies to adults; for children, one-fourth to one-half this dose is employed, according to the age of the patient. If no improvement is manifest in twenty-four hours, the dose is to be repeated, but slightly increased in size. If, however, marked amelioration of the symptoms follows closely upon the exhibition of the initial dose, another one of the *same size* should be given in from forty-eight to seventy-two hours.

In addition to the bacterin-therapy, it is always well to give a full dose of calomel and sodium bicarbonate and to empty the intestinal canal, in order to obviate intestinal autotoxemia. Acetylsalicylic acid (aspirin), 5 to 15 grains every three hours, is a remedy of time-tried value. Aconitine seems to exert an almost specific action on the pyrexia of tonsillitis. This antifebrile is to be given in small doses, at frequent intervals, until the temperature begins to fall, the skin becomes moist, and the pulse has appreciably slowed; then at longer intervals.

An icebag applied to the throat gives considerable relief from pain; sometimes ice-water irrigations applied directly to the tonsils materially relieve the pain. Swabbing the tonsils with 10-percent silver-nitrate solution gives great relief in many cases; but one must be careful to see that there is not an excess of the solution in the swab, else some of it may find its way into the larynx, with possibly disastrous or at least most disagreeable consequences.

Diphtheria

As we have gone into the differential diagnosis of diphtheria when considering acute follicular tonsillitis, nothing further in that direction need be said at this time. Suffice it to mention that in every doubtful case the antidiphtheric serum should be administered promptly and in sufficient dosage while the report of the state public health laboratory (or municipal laboratory) on the swabbing from the throat is being awaited. Give the patient the benefit of the doubt.

As to the dosage of the serum, the opinions of competent authorities vary somewhat; but, if one should err in this regard, let it always be on the safe side—*give enough!* In the early years of my experience as county health officer of Emmons County, North Dakota (a county of 1800 square miles' area), I administered from 1000 to 2000 units in mild cases or in cases seen during the early stage of the infection; and from 3000 to 5000 units in severe or advanced cases; and the results obtained from this dosage were very good, indeed. Among several hundred cases so treated, there were but 4 deaths. This may, to a certain degree, be accounted for by the fact that my practice to a great extent was among Russian-Germans, who are a very rugged people—for, surely, life among them has been a struggle that needs made for the survival of the "toughest," if not the fittest.

I recall in particular one instance of what "antitoxin" did in one family, some ten years or more ago. A 9-year-old boy rode, bareback, 12 miles into town to have me go out to his father's homestead. The little fellow came because he, of a large family, was the only one not down with diphtheria. The mother and 6 small children were all very ill. Two little girls, twins of about 4 years particularly, I found were desperately sick; not only the tonsils and uvula were covered with necrotic pseudomembrane, but the nasal cavities also were filled with it. As I had only a limited quantity of serum, I divided it between them, the two little girls receiving only 2000 units apiece. Yet, both recovered.

In another case, one of laryngeal diphtheria, a little girl was cyanotic, and nearly asphyxiated when first I saw her. I gave her 3000 units of antitoxin, and, two days later, another 2000 units. At the same time, we slaked some quick-lime and, putting this, together with a little creosote and tincture of iodine, into a teakettle with boiling water, forced the child to inhale the steam, conveyed through a long paste-board mailing-tube. In a short time, the effect of this treatment was apparent; the membrane on the vocal cords began to loosen, and soon large masses of it were coughed up. This gave great relief for several hours, when the steaming had to be repeated. However, the child ultimately recovered.

This steaming with freshly slaked lime I can recommend strongly, as I have seen it save the lives of many children, who, without this adjunct treatment, would have been asphyxiated before the serum could have performed its mission. Of course, tracheotomy might have taken the place of the steaming; but then, tracheotomy has its disadvantages, and a physician would have a hard time per-

suading Russian parents to allow him to perform this operation on their child. As to intubation, that is difficult, at times even dangerous, since one may dislodge the pseudomembrane downward when placing the tube, with the result that the bronchi may become occluded and death occur.

Returning to the question of dosage, I now use between 2000 and 5000 units of the serum in the "mild" cases and 10,000 units in desperate ones. I know that competent authorities give as high as 30,000 units in bad cases; but, personally, I doubt whether 30,000 units of antitoxin will save life when 10,000 would fail. However, as was said earlier in this paper, if one should err as to dosage, let it ever be on the *safe side*, and, *give enough serum!*

A great deal has been said about "serum-sickness" and "serum rash"; but, in an experience covering the administration of over 1000 doses of antidiphtheria-serum, I have seen just 2 instances where an eruption followed, while I saw no case of anaphylaxis. The two cases of rash occurred in two children in the same family, to whom the serum had been administered simultaneously. This resembled the rash of measles very closely and gave rise to a troublesome itching; but it soon disappeared.

Strychnine is the drug for cardiac weakness in diphtheria; while the "triple arsenates" of iron, quinine, and strychnine are indicated during convalescence. Formic acid, in dose of 5 to 18 minims, has been recommended as a cardiac tonic in diphtheria; and it is believed by some that this drug prevents, to a certain extent, the postdiphtherial paralysis of the pharyngeal and palatal muscles. I have used it in a number of instances, but could never quite convince myself as to its actual value or otherwise.

I am a firm believer in local application in the treatment of diphtheria. The tonsils should be swabbed frequently with one of the mild alkaline antiseptic solutions, and the membrane should be gently removed as soon as it will come away without the application of any great amount of force. The necrotic surface is a most suitable medium for the multiplication of the diphtheria bacilli, and it should be gotten rid of as soon as it loosens. Fresh pineapple-juice contains a proteolytic ferment (bromelin), which exerts a digestive action on the pseudomembrane of diphtheria; it is, therefore, a suitable food or beverage in this disease; also, it may be applied directly to the tonsils by means of a swab.

In diphtheria, there almost always, if not always, is present a mixed infection, the streptococcus and staphylococci being coexistent with the diphtheria bacillus. Consequently, I have, of late years, been in the habit of administering a combined bacterin containing the former varieties of organisms, at the time I administer the antidiphtheria-serum, and I believe the results justify me in this method of treatment.

Peritonsillar Abscess (Quinsy)

In this, as in all abscesses the correct procedure is to evacuate the pus as soon as you are certain that any is present. However when a person who in the past has had one or more attacks of quinsy experiences the premonitory symptoms of a "sore throat" a dose of a stock bacterin, such as was recommended under the heading of "Acute Follicular Tonsillitis," together with calcium sulphide to saturation, quite often will avert a recurrence of the old trouble.

As soon as the presence of pus is evidenced by a bulging prominence in the region of the tonsil, lancing is in order. The "line of safety" for the incision is halfway between the base of the uvula and the last upper molar tooth, cutting along this line. When this line is followed, one is not very likely to encounter any sizeable blood-vessels. It is always well to make a generous opening, for, a small incision will close within a few hours, and a repetition of the lancing may become necessary. Should the incision close too soon, it may be reopened by quickly pushing into the old wound a Kelly hemostatic forceps, closed up, and then opening the blades.

The patient who has had repeated attacks of quinsy should be urged to have the offending tonsils removed, that is, completely enucleated, since this is the only certain method by which he may forever rid himself of the possibility of recurrences. The operation may be done very nicely under local anesthesia (with novocaine and adrenalin).

Chronic Follicular Tonsillitis

Of late years, the work of Billings, Rosenow, Murphy, and others has forcibly called our attention to the fact that practically all the oldtime "chronic rheumatism" cases are but metastatic infections having their primary focus in diseased tonsils, pyorrheic tooth-sockets, accessory nasal sinuses, and in colons with stagnant fecal currents. It is nothing short of wonderful how these "rheumatic" cases improve consequent upon the thorough, complete removal of chronically diseased

tonsils, the proper treatment of pyorrhea (as heretofore outlined), the drainage of pus-filled antra and frontal sinuses, and proper colon hygiene; however, bacterin-therapy must, positively, be employed simultaneously and conjointly with other indicated measures, usually of a surgical nature.

In these cases of long standing, the opsonic index usually is so low that the removal of the primary focus or foci of infection will hardly suffice to effect a cure of the metastatic infections in joints, muscles, and nerve-sheaths; and it is here that bacterin-therapy can, and does, do wonders. It is true that bacterin-treatment alone is of great benefit in these cases; nevertheless, it is a self-evident fact that the rational procedure consists in first removing the primary focus of infection, if a permanent cure is to be expected.

The bacteriology of chronic follicular tonsillitis is practically identical with that of pyorrhea (q. v.); and what has been said as to the bacterin-treatment of the latter disease will apply equally to the former.

With regard to the surgical treatment of this condition, I wish to register a vigorous protest against employing the tonsillotome, which I regard as a relic of the dark ages. Even in the hands of an experienced operator, this instrument never will remove the entire tonsil, but it leaves, usually, from one-third to two-thirds of the diseased gland, thus opening wide the lymph-channels and, so, often aggravating rather than alleviating the trouble. Besides, the tonsillotome is very liable to hack out pieces of the faucial pillars, with consequent impairment of vocal resonance.

When a tonsil is diseased to such an extent that it requires surgical treatment, nothing short of complete enucleation will suffice; free dissection, under local anesthesia (with novocaine and adrenalin), followed by the use of the cold wire snare (the Tyding snare), gives splendid results, with the minimum of risk.

Infections of the Salivary Glands

These infections are comparatively rare, but occasion a great deal of suffering to the patient, and trouble and worry to the doctor when he does encounter them. In all the cases I have seen, the infection could be traced to a preexistent pyorrhea or chronic tonsillitis. Consequently, when a patient has been the victim of an attack of this nature, due attention must be paid to the predisposing cause.

The bacterin-treatment of infections of the salivary glands is identical with that of acute follicular tonsillitis, which see. Infection of the salivary glands quite commonly ends in suppuration. Sometimes the abscesses may be drained through the floor of the mouth and this route, when practicable, is preferable to an external incision, in that it leaves no visible scar. Saturation with calcium sulphide at the beginning of the attack I believe to be a valuable aid to bacterin-treatment.

Ludwig's Angina

This severe form of infection of the structures constituting the floor of the mouth probably is due to the streptococcus. Sir Almroth Wright, in his "Studies in Immunization," describes a desperate case of this rather rare affection. In Wright's case, a surgeon had made multiple deep incisions into the indurated area, but the wounds would not drain. Wright then administered 60-grain doses of citric acid, at 3-hourly intervals, and within twenty-four hours lymph had begun to ooze from all the wounds. The administration of the acid was then discontinued. Bacterin-treatment was not instituted in this case, as a determination of the opsonic index showed the latter to be 1.8.

Here, it was merely a matter of securing a plentiful supply of the antibody-laden serum in the streptococci-filled tissues, in order to effect a cure. Had the index been below normal, a streptococcus-bacterin would have been indicated. In the absence of a determination of the index, the safe procedure would have been to administer the bacterin, anyhow, as a "safety-first" measure.

As long as there is any doubt as to the specific causative relationship of the streptococcus to Ludwig's angina, it is well to combine the staphylococcus aureus with the first-named organism. The dose of the streptococcus pyogenes is 30 to 60 millions, and of the staphylococcus, 50 to 100 millions. Calcium sulphide, to saturation, if the patient can swallow, is indicated. Strychnine may be needed, if there is marked prostration.

[*To be continued.*]

An Account of an Epidemic of Measles*

With a Review of Eighty Cases

By E. W. Gardner, M. D., Webster, Iowa

MEASLES is not some new fangled disease, but has an ancient and florid pedigree. Whether the bug or the disease was the pre-existent we cannot say, but the differentiation of the disease as an entity may be placed in Sydenham's time. Prior to that, an individual with fever and artistic dermal decorations was at a loss to differentiate his affliction as measles, smallpox or scarlet fever. But, after Sydenham classified the aches, even the medicos could recognize the clinical pictures.

Measles being satisfactorily contagious, pandemics of the affection have scourged continents. In 1775, the Sandwich Islands made the acquaintance of the white man's Bible, booze, and measles. Within four months, 40,000 of the 150,000 population gave up the ghost in disgust and efflorescence. The historian fails to state which was the active agent, or whether the action was a synergistic one.

During 1834 to '43, Europe was swept by measles, and the dust was blown to adjoining continents. The mortality rate is not recorded, which is just as well since it prevents a dubious comparison with the present rate. Panum, a physician in the Faroe Islands, records himself as having been moderately busy in 1846. It seems the gentle measles had neglected these islands for some 65 years; consequently its introduction was quite successful. Of the 8000 population, more than 6000 entertained him with great warmth. Many died, while more regretted that they could not.

With such competitive headliners, my account of an endemic affecting only some 80 individuals must be considered inconsequential. Nevertheless, played to the restricted house of our small community, as a means of entertainment it was quite effective.

Because of the bodily limitations of a medico not built—as you will observe—according to the architectural specifications of a Jess Willard, it was found impossible to examine and tabulate the findings of the cases as well as I could wish. The 50 odd patients whom I saw ranged in age from eight weeks to 50 years. The age in no wise determined the disease intensity; of the four infants affected, two were breast fed, and had been infected by their mothers.

The epidemic originated from one young man who, being in misery, desired company and sought it in a crowded public building. Having received many condolences and minute directions for infallible cold-cures, he returned to his home where he retired with hot lemonade, blankets and misgivings. Within 12 hours the lemonade was thrown up, the blankets off, the misgivings were confirmed, and he blossomed as an urticarial rose. We haven't yet decided on his rate of commission, for he's inclined to be hoggish.

Being incompetent to discover in one fervid epidemic all the endearing qualities of measles which thousands of observers in the past two centuries have found, I will now boldly crib wherever possible. I am sure those others do not object, and I hope you will not.

Apparently the laity dubs measles a child's disease because it affects children and adults alike. As a dispeller of optimism in its host, it is equalled only by its small financial value to the medical man, who is fortunate if he averages two visits per case. In this wise its value is less than that of a news item to a village newspaper; for this, as George Fitch said, is worth three insertions: future, present and past.

Measles however, is neither snob nor prude. It infects race or individual irrespective of apparel or of its lack. Apparently, however, it best appreciates the close-to-nature flavor of the savages of whom it conscientiously gathers some 50 percent to their mothers. It is just about the most transmissible of all diseases, and presumably is a bugous affair; but, as the offending bacterium has not been isolated, any one is justified in his opinion.

Goldberger and Anderson have shown that the virus of measles may pass through a Berkefeld filter, may resist desiccation or freezing for at least twenty-four hours, does not respect union rules, and becomes non-infective after fifteen minutes' exposure to 131° F.

In 1908, two Italian physicians whose names (Pacchioni and Francioni) succumbed to my pen but defy my pronunciation, made thrilling explorations into the habitat of measles virus with the hope of capturing an adult and authentic specimen. Their re-

*Paper read at a meeting of the Des Moines Valley Medical Association held at Ottumwa, Iowa, in 1915.

ports are conflicting and suggest a Peoria flavor. As Forchheimer says, "The sum and substance of this research is, that there is found a bacterium only in the secretions . . . . and that the opsonic index to this bacterium is increased."

Lorey suspects measles of a double life, I think. He does not go quite so far as the gentleman who, a few years ago, ingenuously announced that Shakespeare's plays were not written by Shakespeare but by another man of the same name, but he does suggest a very close relationship between measles and erysipelas. He says: "The erysipelas-streptococcus is the most frequent cause of complications in measles; and the intensity of an epidemic is determined by the relative presence of this in the blood and in the tonsils. With all our medical progress, our knowledge of the etiology of measles barely exceeds that of Home, of Edinburgh, who, one hundred and fifty years ago, declared the virus to be "in the blood." Forchheimer contents himself with saying that Clinical Experience, and Hektoen, confirm this postulate.

Measles is an advocate of the slogan, "From Factory direct to Consumer." In other words, the exposure must be by direct contact of respiratory secretions or blood and must occur during either the stage of invasion or of desquamation. Air may carry this contagion, but it is extremely questionable whether a third person can officiate. Again, some question whether transmission is possible during the stage of desquamation. Following the lead of Kerschensteiner, Forchheimer declares dogmatically, that there is no contagion during the stage of desquamation. Corlett asserts that contagion . . . . continues until desquamation has ceased; and his statement is upheld by Osler. Now I certainly should hate to disturb the good old Irish feelings of Doctor Kerschensteiner, but in our epidemic there was one unquestionable infection ten days after the donor had a normal temperature.

That there may be measles-carriers, as there are typhoid-carriers, is intimated by Ross in a recent London journal. He says: "Although the intracellular parasites disappear from the blood of cases of . . . . measles as soon as the febrile stage is over, they still may be found in the cells of the aural, nasal, and abscess pus for long periods after convalescence is established."

Immunity

Congenital immunity is possessed, I think, only by those whose habitation supports the rainbow. Experiments at immunization by inoculation and serums have been entertaining only. So far as I know, immunity can be gained only by due and personal affliction. Forchheimer, Osler, and others declare nursing infants to be relatively immune, even when nursing infected mothers. In our epidemic, however, of two nursing infants, both were infected by the mothers. Civilized races apparently possess an inherited semi-immunity; at least the severity and mortality rate is lower, although this might be due to the sanitary conditions being better than among savages.

Even the immunizing value of a subsequent attack is questioned. Men of wide experience, such as Schwalbe, Grancher, Anders, and Forchheimer, state that reinfections not only occur, but are not exceptional. Anders mentions one family who suffered four annual successive attacks. Certainly they should have bought coupons or green trading stamps. Maiselis has collected a series of 106 undoubted cases of reinfection, 3 of which were suspected third attacks. O. Heubner remains safely on the fence: he says that one attack induces immunity, but adds candidly that many violations of this rule occur. Barthe and Sannez report but 3 reinfections, from an experience with 1521 cases. Osler states that infection confers a complete and lasting immunity, second infections being very rare, indeed. Kerley mentions but one. Among others, one lady told me that she had enjoyed four attacks. However I am quite well acquainted with this lady, and, although excellently exposed, she failed, unfortunately, to make good in our epidemic. In his report of several thousand cases, in three successive epidemics among the same islanders, Panum does not mention one reinfection.

Infection of a child in utero, with eruption, at or immediately following birth is a matter of record. On the other hand, Woods, of Iowa City, reported, in *The Journal of the American Medical Association* for September 5, 1914, a case of measles in an infant born three weeks after its mother had recovered from the attack. There were no evidences of intrauterine infection, but several months later the child displayed an orthodox eruption. Goldberger, Anderson, Hektoen, and others have inoculated animals with infected blood and obtained an eruption with Koplik spots.

Records fail to show a mortality rate for uncomplicated measles. Osler says: "Measles-toxemia rarely produces death, and the fatal cases always are complicated by other lesions, the most frequent being pneumonia, colitis,

and nephritis." As the national annual death rate from measles approximates 13,000, the benignancy of its complications is not evident. The inflammatory process affects every mucous membrane. In severe cases, the blood is deteriorated and contains staphylococci and streptococci. Many bacteria have been credited with the production of measles, only to be shorn of their honors by later studies. The complications in measles differ in no way from the same processes in unmeasly patients. Focal abscesses are occasionally found in the liver.

Incubation

Incubation averages ten days, with a range of between five to fifteen. In suspected cases, I saw, or elicited, subjective symptoms by the seventh day. Observers differ regarding the incubation blood-picture. In Osler's "Medicine," Ruraeh writes: "This period shows a leukocytosis which does not persist through the stage of invasion; differing in this from scarlet-fever." Lucas, however, in *The Journal of the American Medical Association* for March 6, 1915, states: "There is leukopenia, with diminution in number of leukocytes." He adds: "A diminution in the number of lymphocytes and neutrophilic cells is noticeable a week before other symptoms, and precedes Koplik spots by at least forty-eight hours. In pneumonia, cerebrospinal meningitis, and scarlet-fever, there is a leukocytosis, but not in measles." I made but two counts, both preeruptive; both were leukocytic, in the neighborhood of 15,000.

Grumann quoted in *The Journal of the American Medical Association*, steals some of Koplik's thunder. (*Muenchen. Med. Woch.*, Jan. 20, 1914.) He says that not every measles-patient wears Koplik spots, while he always has found, in cases that later erupted, peculiar whitish efflorescences on the tonsils. These are punctate or linear and about 3 mm. in length. He says that these spots are absolutely reliable, precede the Koplik spots, and he never did like the way Koplik combed his hair, anyway. I failed to find any—spots, not hair.

I found the exanthem on the hard palate on the eleventh, tenth, ninth, and even eighth day. I found no Koplik spots in the nares, although there was coryza as early as the seventh day. Chills were rare, there being but one frank case; and this ran an uneventful, though severe, course.

According to Osler, this period of incubation may have prodromal eruptions in cases running as high as 40 percent. This shows as a fine rash appearing twenty-four hours prior to the measles eruption. I failed to find any such case.

In 1898, Bolognini described a peritoneal crepitation, which he considered pathognomic and the result of a peritoneal eruption. This is sought by gently pressing the finger-tips upon the relaxed abdomen. A to-and-fro motion will then elicit a slight friction, "as of two bottles rubbed together," but which disappears upon deeper pressure. It is not found after the skin is erupted. I found 3 cases of this.

Although I have found it described nowhere, every case displayed a characteristic tongue. What its diagnostic value may be, I cannot say, but, in every case it came early and stayed late. It was a peculiarly glazed tongue, with a moderately heavy dull-white furring down the center. In the posterior half, this deepened to a heavier dirty-brown. The central coating of the anterior portion thinned toward the edges, becoming an inflammatory red, with elevated and redder papillæ. These flaming dots invaded the anterior sixth, being set in strong relief by the fur. This appearance of the tongue was noted earlier than any other symptom, and red depressions persisted during desquamation.

The classical spots of Koplik were found in every case, except in the nursing infants, in whom the rash was scattered, light; they suffered from mild coryza, bronchitis, and fretfulness; but the temperature did not rise above 101 degrees.

Invasion

Invasion occurred in no case later than the tenth day, and was politely introduced by temperatures varying from 99° to 104° F. All prodromal pleasures were thereby increased, although two patients disavowed feeling any discomfort at any time. Vomiting was not infrequent, though less common than in scarlet-fever, of course. Epistaxis occurred early in several cases, more often in the late stages of the eruption; two cases required gauze packing. There was but one case of frank convulsion, and this, as well as a loaded stomach and all earthly ambition, was relieved by 1-20 grain of apomorphine. During the eruption, however, there were two cases of convulsions unrelated to gastric origin.

The period of invasion, without exception, comprised four days, with a temperature almost or quite normal on the second or third day; usually the latter. I saw no case

erupt at a temperature less than 104 degrees. The highest temperature was 106° F., and this in only one case; almost every other case utilized a temperature of 104 or 105 degrees. With this, there often were cold extremities and a blanched surface, thus confusing the parents. The mental effect of this fever varied from stupor to a species of mania; the majority of patients merely were drowsy and extremely thirsty, the thirst being assuaged by an ounce or less of water.

The eruption appeared between the fourteenth and the twentieth day, the great majority at the fourteenth. One failed to erupt. Of this type, Embden reports 20 cases in a series of 461. Aside from noneruption, this case exhibited every other symptom, except temperature, which did not reach 102 degrees. The patient said that this attack was a second one, occurring twenty-five years after the first. That she was three months pregnant, added interest but no complication as she did not abort, although in the past three and one-half years she has achieved one child and three abortions to my olfactory knowledge.

The characteristic odor of the breath invariably was present, but only *after* the period of incubation, and varied in intensity with the temperature. I found, contrary to the statements of the infallible laity, that measles cannot be diagnosed from the front door by the nose of the investigator, except in those houses equipped for submarine service.

We had no hemorrhagic cases. I found indubitable proof that cold air in the sickroom retarded eruption; whereas a moderately hot room (80°), with hot bathing, relaxed the capillaries, filled them with blood and induced sweating, with rapidly spreading eruption. Profuse sweating, with temperatures of 104 or 105 degrees, was common and interesting, particularly to the parents, who lost thereby an ancient and infallible axiom governing home posology.

Desquamation varied in degree and length. Some showed scales only on the eyelid margins; others were quite generous, and continued to scale for ten days. Osler says that the desquamation lasts two or more weeks, but that the scales very seldom are infective.

Cause of the Exanthem. Complications

The cause of eruption Von Pirquet (*J. A. M. A.*, June 6, 1915) believed to be dependent upon the vascularity of the skin, first; while the rash is the result of a "reaction with the measles-organism or virus which takes place in the capillaries of the skin, and may be due to an agglutination of the measles-organism by the action of its antibodies."

In our epidemic, complications were mild. *Otitis* was frequent, especially during retrocession, but contented itself—and the patient—without pus formation. Regarding otitis, Kerley says that purulent, and even nonpurulent, otitis is not necessarily accompanied by pain. *Bronchitis*, with mucus and mucopurulent secretion, was almost invariably present, but one patient escaping. There was no case of frank bronchopneumonia, although many teetered dangerously close to it. One case, typical of bronchopneumonia in every respect, resolved in a very interesting and unexpected manner. Did not Osler declare that these processes may stop at any point and go on to recovery, I might be inclined to question my findings. I should say, however, that the dividing line was very elastic, and that bronchopneumonia is more often present than we are prone to admit—it being masked by the somatic symptomatology. Pleuritic pains were frequent, also neuritic and muscle pains, but no frank pleurisy. Neither was there any lobar pneumonia nor pulmonary necrosis. One lady, 50 years of age, had an endocarditis of mild degree, but this resolved without disaster. *Stomatitis* was common, but was not accompanied by gangrene. *Ophthalmia* was uniformly present, without corneal erosions. Styes frequently relieved the tedium of convalescence. Diarrhea, particularly after indiscreet feeding, was encountered, but was not intractable. There were 4 cases of complicating chickenpox. There was no marked nephritis, though albumin in small amounts was found. *Pseudocroup*, with later extrusion of membranous shreds, was seen in 2 cases. No bacteriological examination was made of these. There were no instances of pharyngeal or tonsillar membrane. Aphonia, following laryngitis, and persisting four and six days, respectively, occurred in 2 cases. There were no skin complications.

Relapse has been reported by several observers. Corlett, however, believes these to be cases of unrecognized rubella.

The *diagnosis* sometimes may present difficulties, particularly in sporadic cases. In this epidemic no such difficulties arose, and the factors to be considered in differential diagnosis, therefore, will receive no attention here.

As to the *prognosis:* Although in itself measles is a nonfatal disease, complications are so certain to accompany it that prognosis

must be guarded. In Sydenham's time, measles was more fatal than even smallpox, and there are records of similar portent that antedate his by centuries. Osler reports epidemics in which the death rate has exceeded 50 percent, particularly in hospitals where septicemia complicated. In a series of 5067 cases in Paris hospitals, 2003 were fatal.

Age is a factor in the mortality rate. In the Parisian report mentioned, the death rate at 1 year or under was given as 62 percent; this steadily diminishing with the increase of age until the age of 40, at which period the death rate again began to rise.

Prophylaxis and Treatment

Regarding prophylaxis, Forchheimer says optimistically: "Prevention of measles is an impossibility," because "prevention of any disease is possible only when its natural history is known." Since the incubation-period often entails no great discomfort, a carrier quite often may infect an entire community, and then wonders at the devious ways of Providence. Added to this, there is the time-hallowed attitude of parents in exposing their young children, so that they "will not have it later"—Osler advises postponement of infection, when possible, until after the fifth year; and Newman says, aptly: "The prevention of measles is largely in the hands of the public." Isolation is the solution.

The *treatment* of measles—here I pause in admitted perplexity. In measles, as in courtship, every man has a method all his own. In either instance, I take it, the doctor pays due attention to the symptoms the while he makes such speed as is possible toward a predetermined end. The technic of treating premarital insanity does not here concern us. Still, to continue the figure, what Holt says regarding measles, is equally applicable to the other: "It is a self-limited disease, and there are no known measures whereby it can be aborted, its course shortened or its severity lessened." Now, that may be very true; yet, Ander's words anent the treatment of measles are suggestive; "The treatment is necessarily symptomatic," he says; "hence, our efforts should be directed toward protecting the various organs that are most likely to become involved by complications, remembering at the same time that the nose, ears, eyes, and throat are involved during the fever-stage, and that the skin is in a very susceptible condition."

In the belief that our appellation of "physic——ian" applies for good and historic reasons, almost every one of my patients received castor-oil. With what accompanying words they swallowed it need not here appear, but it did not tarry long. However, it was not followed by any later cathartic, because of the colitis present in the eruptive stage.

Fever and aching responded but faintly to anything. In the first dozen cases, I experimented with aconitine, aspirin, phenacetin, acetanilid, and the like, but soon came to Anders' view. I did not use cool sponging in the preeruptive stage, but gave frequent hot baths instead, with cold to the head. Codeine was valuable. Acidulated beverages produced bloating. Hot drinks were no more efficient than cold ones for eruptive purposes. When high fever was associated with cold extremities, atropine, glonoin or whisky were used, and heat externally. To relieve the clinical picture of pain, fever, bronchitis, nervousness, dry throat, and so on, I found no other one preparation so valuable as the powder whose formula, compounded over a century ago, bears the name of its originator, Dover.

As to the amount of light to be admitted to the patient's room, writers differ. Some authors contend that red light possesses curative properties. The red light I have not tried, but the amount of light admitted was left somewhat optional with the patient. I do not advocate total exclusion of light, for several reasons, not the least of which is the tendency for a feverish patient to "lose himself" in darkness and to become delirious. Boric-acid solution and zinc-oxide ointment were used in the eyes.

Milne, in the *Journal of the American Medical Association* (July 18, 1914) reports his experience with the eucalyptus-oil treatment. Briefly, this consists in the oil being rubbed in over the entire body, twice daily for four days, and then once daily until the tenth day. This, with deep swabbing with a ten-percent solution of phenol in oil, every two hours for the first twenty-four, will result, he asserts, in a very mild type of the disease and prevent complications. I did not try this method, as I did not know of it until after our epidemic.

For the skin irritation, I used olive-oil, alboline or cacao-butter, either alone or with the addition of phenol or menthol.

For the otitis, I used cocaine, ichthyol or phenol in olive-oil or alboline, in conjunction with heat, preferably moist.

For the Gospel Team whose presence made the epidemic possible, I was asked to donate one dollar, which I gladly did, and now I am industriously saving another for next year.

Therapeutic Indications in Minor Surgery

By A. D. Nourse, M. D., Sawyerville, Ala.

THE selection of the above headline is open to criticism as the very term "minor surgery" is an arbitrary one. The surgery of everyday practice, especially when the practician is so situated that immediate referring of cases to an equipped hospital and the surgeon-specialist often is far from practicable, includes both minor (socalled) surgical procedures and also major operations. Neither is "therapeutic" here taken in its narrow sense, as sometimes accepted, that is, applying to the internal administration of remedies; but is used in a broader meaning.

Since the passing of the days of "laudable pus" and the dawn of modern surgery, every effort has looked toward the attainment of asepsis, or, since this is an ideal practically impossible to secure, antisepsis, as the next-best thing. The number of agents having more or less antiseptic properties is a large one, but the majority that have attained general acceptance are coal-tar preparations of the aromatic series, particularly phenol and its cresol homolog derivatives; besides chlorine combinations and preparations designed to liberate nascent iodine, with iodine itself in alcoholic solution well to the front in its particular field. Compared with these, the silver, boron, and other kinds of compounds have found but limited employment. Phenol (carbolic acid) still holds a conspicuous place, being so prominent that its solution is taken as a measuring-unit in the classification of bactericidal efficiency; still, phenol, as such, has largely given way to other coal-tar derivatives of higher efficiency and less toxicity. So harmless to healthy tissue are some of the latter that in the hands of very many surgeons they have entirely displaced mercuric chloride, the popularity of which now is waning, although absolutely it has enjoyed the greatest vogue of any since Lister's time.

The reasons for the disappearance of this combination of mercury with chlorine from first place among antiseptics are various and weighty. Even in great attenuations, this agent destroys healthy tissue at the very time when we wish to conserve it, through its action of coagulating albumen. There is also, under certain circumstances, danger of absorption and toxic systemic effect from the use of this highly efficient germicide. The results following its accidental ingestion are too well known and numerous to require even casual mention. Altogether, it is not a safe agent, and, when other and better means for accomplishing the same result are at hand, there is no need of employing this ultratoxic.

For some years past, both when doing considerable accident-work and, more recently, when handling the surgery incident upon a varied general practice the writer has ignored mercuric chloride entirely. Various cresol and related preparations have been employed, instead, where it was desirable to use in substance a powerful yet safe antiseptic; the camphor-phenol combination, in full strength or diluted with olive oil; or pix-cresol combined in the desired proportion with a liquid diluent or boric-acid powder. In the dermatoses, including burns, carbenzol (a tar distillate) has given such good results that it is not difficult to assert that there is nothing better, even in the face of the fact that in this age of rapid evolution there may be something which has not yet come to the attention of a rather close observer.

How Chlorazene Came to Be

So engrossed were surgeons with the bichloride of mercury, that the tendency was, to stand still in development along the lines of chlorine-containing antiseptics other than corrosive sublimate, although the way was clearly pointed out by the somewhat efficacious, if not highly stable official solution of chlorinated soda (Labarraque's solution); war exigencies, however, forced chemical investigation, with the result of giving us something better in the form of a chlorine-containing synthetic.

This new compound is para-toluene-sodium--sulphochloramide, named expressively but so bulkily that, in Europe, it was commercially given the trivial name of chloramine; since this name was preempted for a different article in this country, it is being introduced here under the proprietary name of chlorazene. Thus our chlorine comes back, this time with a nitrogen-chlorine molecule linking in a substitution-product of tolul or toluene of the aromatic series. Toluol already had a place in wound treatment, namely, in our balsam of Tolu, and now we have it presented as a product of higher synthesis applied to the coal-tar derivatives.

The history of antiseptics, if only since Lister's day, would fill volumes, even leaving

out the efforts of empirical medicine, to combat (the then unknown) pathogenic organisms, and ranging from the sometimes misdirected use of "balsams" to simple water and sea-water lavage; the balsam efforts often defeating themselves by stoppage of drainage and of air thereby providing special advantages for anaerobic bacteria. With our present conception of the value of direct oxidizing agents, such as potassium permanganate, succinic dioxide (alphozone), and hydrogen dioxide, as also of the merits of the iodine- and chlorine-releasing agents, and through the results of practical observations, antisepsis has reached an advanced stage, and evidences are that clinical demonstrations, backed by laboratory findings will give us an important addition to our armamentarium in the chlorazene preparation.

Therapeutic Suggestions for the Treatment of Wounds

The treatment of wounds, other than those made intentionally through noninfected tissue and without certain cavity penetration, is one involving antiseptic measures directed against infection concerning the extent or virulence of which we are ignorant. No one can know the depth of implantation nor yet the extent of mechanical or metastic spread of infection in penetrating wounds and, hence, it is one's duty to treat every possible source of infection as though it were a nidus of trouble; of course, without an unnecessary exaggeration of free drainage by excessive tissue destruction. The principle of suspecting every wound has led to the advocacy of bacterin-therapy in all penetrating wounds. This indeed may be the ultimate procedure, not alone for preventing tetanus and hydrophobia, but also in combating the more common streptococcic, staphylococcic and other infections.

Echinacea, the Vegetable Bacterin

For years before the present vogue of biologic therapy, many physicians have viewed all penetrating wounds with intense suspicion and invariably employed echinacea, a procedure which the author not only feels to be justified, but positively demanded by the best interests of his patients. In the case of wounds that do not permit prompt and thorough cleansing and which do not promise immediate healing, the patient gets echinacea, usually also nuclein, and, when there is suppuration from the wound itself (as in carbuncles, furuncles, and the like), he likewise is saturated with calcium sulphide. If there is preexisting disease or a history of disease, especially of lues, other indicated treatment is given in addition. If there is no such history the necessity of cell proliferation for the reparative process is considered, and echinacea and nuclein are given because they raise the opsonic index and act as tissue-builders. Often they are applied to the wound directly, and, when the necessity of skin grafting was encountered, nuclein or bovinine have been used at times, with perfect success. In time echinacea doubtlessly will receive the full recognition to which it is entitled. It has recently been spoken of as a "vegetable bacterin," and as such many have used it and still do so; not, however, to the exclusion of the bacterins. Although there may be some discussion as to the selection of a bacterin other than an autogenous one, there are never contraindications to echinacea. In the case of chancroids, many apply echinacea as a routine treatment, adding nuclein and belladonna, to stimulate capillary circulation, after thoroughly cleansing the wound with peroxide of hydrogen or other suitable agent. Good results may be obtained from moist dressings, or the frequent application of this combination. However, the writer's preference is for initial cauterization with nitric acid, following the application of a solution containing anesthaine, 3 percent, and cocain, 1-2 percent, or some other local anesthetic.

The use of the local anesthetic in these cases will pay; the young gentlemen of the laity afflicted with cauterizable lesions no longer care to go about bragging of how "doc" put stuff on so strong that it smoked and hurt so that they wanted to "bite nails." People expect all operations to be painless, and the uptodate doctor must have a nearly painless procedure whether it be in obstetrics or in "burning" chancres. Anesthaine being void of the high toxicity of cocaine and novacaine, is a safe agent whether applied to open lesion or used hypodermically; hence, it is a great aid toward the ideal aim at painless minor surgical procedures.

Hydrogen Dioxide Too Much Neglected

Hydrogen dioxide is another article less used than formerly, even though its effect is, in part, somewhat theatrical and consequently psychological. The patient "just saw the corruption boil out," and this mechanical action of the "boiling out" has made this article very largely a lay remedy.

As we all know, water is the monoxide of hydrogen; this plus another atom of oxygen—which is readily turned loose—makes the diox-

ide. The effect of this H_2O_2 is to form instantly a combination with oxidizable organic substances and produce a foam, which removes superficial and readily reached detritus. However, sufficient irrigation with a solution carrying a stronger antiseptic will usually produce better effects. Perhaps the most serviceable use for this solution is for loosening bandages and dressings when stuck to the wound by the exudate. But, if the gauze is moistened with liquid paraffin, this will prevent troublesome sticking. The tendency is to avoid dry powder dressings, using moist ones instead, except when healing by first intention is expected. Where oilsilk would seem indicated over a moist dressing, the addition of glycerin to the antiseptic solution and the gauze moistened with oil often will maintain sufficient moisture and thus prevent sticking until the next dressing of the wound.

The Tissue-Phosphates

While looking to internal aids to repair, where destruction of bone is present, we must not overlook the demand for a calcium-salt. Delayed bony union or a failure of the provisional callus to harden calls emphatically for calcium phosphate, and, as the indications for iron usually coexist, together with a call by the nerve-substance for both magnesium- and potassium phosphate, the three phosphates may be administered together with the iron, also in the form of the phosphate.

The attempt by Schuessler, to base a system of medication on the use of the twelve tissue-ingredients of the body, which he had demonstrated through ash analysis, is a bit far-fetched; still his conclusions were correct so far as they went, although he failed to allow for catalysis and the intermediate products of metabolism. His conclusions are absolutely correct to the extent permitted by his limited horizon. He called attention to one thing that is much overlooked, namely the necessity of supplying fluorine under certain conditions of needful repair of elastic tissue. Where this necessity exists, the calcium salt of fluorine is absolutely indicated, but so little of it is required that we may even follow Schuessler as to dosage and give the homeopathic calcarea phos. 3 x.

As to the dosage of the calcium salts, we need neither agree nor disagree with anybody. Except in the case of the lime-saturated aged, no harm results from a liberal dosage with calcium, nature taking just what it wants and throwing off the surplus. For the hypercalcified aged, the treatment is modified, since little bony union is expected, anyway, and a partial ligamentous union is quite acceptable to the medical attendant who wishes that the "other doctor" had this particular case.

Surgical Aid When Needed

Because there is a trauma or an extension of some pathological condition to the point where surgical interference is a necessity, is no reason why nature's call for assistance should not be heeded beyond merely extending mechanical aid. Nature can beat the rankest drugstore substitutor when it comes to trying to reach out for "something just as good" in furnishing organic constituents or catabolic needs. Nevertheless, there is no reason why we should not strive to supply nature's wants. Of course, one thing is always to be remembered in treating surgical cases. Mechanical aid is the immediate paramount consideration, and we have no right to expect the impossible from therapeutic means. All things having been balanced and surgical interference decided upon, the latter becomes the cardinal point, while other measures become aids to surgical success, in many instances even essential to it. In days not far distant the distribution of medical men will be arranged so that the internist no longer will be required to combine surgical duties with the broad responsibilities of diagnostic and therapeutic work; for, someone devoting himself to surgery always will be at hand instantly to exercise his skill. Many times the internist desires the help of the exclusive surgeon, despite his own careful training in anatomy and surgery. However, he cannot confine himself to "first aid", at present, but must use his talents to their full effect.

What the general man so situated can do in the way of saving digits and even limbs, when his first impulse is to amputate, often is surprising. A fairly good rule to follow under these circumstances when an arterial supply to the extremity can be demonstrated, is, to try to conserve it—always remembering the possibilities of the establishment of collateral circulation. Always remember that under most circumstances taking the chance of saving is justifiable—do not make a cripple when there is a possibility, perhaps by means of a later secondary operation, to save a part. Clean up the ragged wound, trim off hopelessly lacerated parts, restore parts to as close an apposition as possible, by means of ligatures, pressure, and bandages (also ad-

hesive plaster), push antiseptic measures—then give nature a chance.

Local and Hyoscine-Morphine Anesthesia

Even in comparatively minor surgical procedure, better work can often be done under general anesthesia; this being true also for the reducation of fractures and dislocations. It is a good thing to have a trained anesthetist at hand, but how very much one can accomplish all alone in "the brush," is surprising, also gratifying to the patient and no less to the physician. A hypodermic injection of hyoscine-morphine-cactin, the half-strength tablets (1-8 gr. morphine hydrochloride, except for robust individuals) to be repeated if needed and followed by inhalation of small amounts of ether or chloroform, will, with a little practice, make it possible to push anesthesia to any desired point. This obviates the usual after-effects from chloroform or ether and lessens the probability of nausea and shock, as well as of pneumonia and other complications. The operation is followed by sleep—perhaps hallucinate but harmless talk—instead of nausea and other postoperative complications. Employ local anesthesia where practicable, but general anesthesia where the purpose is served better. Practice will enable a skilled therapeutic artist to get his therapeutic tone and pitch, as does a musician of skill playing on his favorite instrument. The success of the large measure of surgery still done by the general practitioner, in an age of specialism, comes from such a man's familiarity with, and reliance upon, therapeutic knowledge, and upon extreme care in adopting antiseptic measures, forced on him by his surroundings.

Control of Hemorrhage

Hemorrhage, other than that requiring torsion, or tying of vessels, is controlled by copious irrigations with hot water, under pressure, while the circulation is determined to the uninjured periphery by giving glonoin, hyoscine, atropine, and, sometimes, morphine. This complication is present less often when working under hyoscine-morphine-cactin anesthesia, the danger from fear and from nervous sensibility being reduced or wholly eliminated thereby.

A circumscribed field requiring a bloodless surface to work on calls for a suprarenal-gland preparation. This is worthy of attention also in cases of passive internal hemorrhage and in hemophilia. These latter accidents may justify the use of active styptics, say, Monsell's solution, on limited areas, while later they call for the vigorous use of nuclein, preferably hypodermically, together with the use of calcium salts and iron. In "bleeders" absolutely no unessential wound enlargement is permissible, even the extraction of a tooth or a scratch being liable to draw upon one's every resource known to arrest the bleeding. The writer knows of no rule to govern the treatment of hemorrhage in this diathesis. It often means that one must resort to the entire list of styptics as well as to the administration of all agents that have been found of value in controlling internal hemorrhage.

WORK AND WORRY

Worry never did a thing
That was worth the while—
All a world of worrying
Ever made a heart to sing
Or a lip to smile.
Worry wraps herself in woe,
Worry bows her head—
Worry never sees the glow
Where the lights of morning grow
In the sky ahead.

Work has won the victories
In the stress of strife;
Work has crossed the stormy seas,
Work has solved the mysteries
In the lore of life.
Work has never time for tears
While there's more to do—
Work, upon the path of years,
As the golden goal appears,
Sees some goal anew.

Worry sits with folded hands—
Work is on its way.
Worry lingers on the sands—
Work discovers larger lands
In the dawning day.
Worry weeps and worry sighs
Over broken toys—
Work looks up with beaming eyes
To the newer, bluer skies
And a path of joys.

Work and worry travel near,
You who seek the goal,
One with voice and visage drear,
One with heart and face of cheer
And unconquered soul.
Worry in her mourning dressed,
Work in garb of glee,
Walk beside at your behest—
Which of these upon your quest
Shall your comrade be?

—Douglas Malloch, in National Magazine for January, 1914.

What Others are Doing

EFFECT OF ECHINACEA UPON THE LEUKOCYTES

Echinacea is one of the favorite remedies of many members of the eclectic school of practice, who prescribe this drug in all septic conditions. While this root is said to have been employed by the Indians against snake bite, clinical observation has assigned to it alterative, antiseptic, diuretic, diaphoretic, and stimulant properties.

Echinacea seems to be one of those drugs the action of which cannot be established in the laboratory by experiments with healthy animals; if, however, it can be shown that the drug produces certain effects upon the circulation or upon the composition of the blood, which can not be explained in any other manner, the inference is justified that these effects are referable to its influence.

Dr. V. von Unruh, of New York, whose laboratory results with echinacea are cited by Professor Ellingwood in his "Materia Medica," reported, in *The Eclectic Review* for April, 1915, upon the results of his studies undertaken for the purpose of determining the exact action of this agent. Inferring from clinical observation that echinacea must act upon the leukocytes, Doctor von Unruh studied these under the influence of the drug in different diseases, and his clinical and laboratory researches, conducted through a period of more than three years, have shown that echinacea increases the phagocytic power of the leukocytes, causing in the blood effects parallel with and similar to those produced by the vaccines, without any of the objectionable features of the latter, such as local or constitutional toxic symptoms.

In determining the action of echinacea upon the leukocytes, the author investigated its influence upon the socalled blood-picture of Arneth, in which the degree of nuclear fragmentation in the neutrophile leukocytes is considered.

Arneth believes that the neutrophiles with one undivided nucleus (class 1) and those with only two fragments (class 2) are young cells and that their phagocytic power is not as decided as that of cells with greater fragmentation of nuclei. The changes in the course of infectious diseases, in the relative frequency of the cells arranged by him under classes 1, 2, 3, 4, and 5, showed that under favorable conditions the cells belonging to the higher classes became more numerous ("shifting to the right"), while under unfavorable conditions a "shifting to the left" took place.

The prognostic significance of this observation was confirmed for tuberculosis by Dr. Jacob Kramer, of the Montefiore Home Country Sanatorium. Dr. von Unruh found that in infectious diseases in which a "shift to the left" had taken place the administration of echinacea reversed this condition, causing the more powerful phagocytes to become more numerous. He also found that leukocytosis was stimulated by the drug and that it caused the normal proportion between white and red blood-cells to be restored, while the percentage of the different neutrophiles became normal. At the same time, phagocytosis became very marked, when before the administration of the drug, no sign of it had been in evidence.

Having made these observations in persons suffering from tuberculosis, pneumonia, pleurisy, diphtheria, and tonsillitis, von Unruh concludes that echinacea is of value in actively increasing and supporting the self-defense of the organism against invading pathogenic bacteria.

SPLENECTOMY IN PERNICIOUS ANEMIA

We have not attempted to give in these pages an account of the fine work which is being done by our surgeons in aiming to cure pernicious anemia by removing the spleen. This method of treatment was introduced only three years ago by three investigators (Eppinger, DeCostello, and Klemperer) working independently, and, while these men were prompted by different reasons, this procedure was followed by such marked improvement that it was quickly taken up in Germany and later in our own country.

While there is considerable difference of opinion as to the possibility of effecting a permanent cure by means of splenectomy, the testimony concerning it on the whole is

distinctly favorable. Thus, for instance, Krumbhaar (*Jour. Amer. Med. Ass.*, Sept 2, 1916, p. 723) reports a total of 153 cases in which the patients underwent this operation, as reported by the various surgeons who performed the operation. Of these 153 patients, 30 died within six weeks, presumably from the effects of the operation. Of the remaining 123, all but 24 showed definite improvement, both in their general condition and in their blood-picture. Of the 24 who survived but failed to improve, a few obviously were harmed. Of the 53 who had survived the operation for more than six weeks and remained under observation, 44 had continued to improve, but 9 of them now were exhibiting signs of relapse.

The best results from this operation are obtained when it is preceded by blood transfusion, and those who relapse after the operation still may be greatly helped by this expedient.

Personally, if called upon to treat a case of pernicious anemia not too far advanced, the present writer would seriously take under advisement the possibilities of this operation.

SIMPLE TREATMENT FOR CORYZA

Acute coryza always is an annoying condition and very frequently proves rather obstinate unless potent remedies—for instance, atropine—are taken to physiological effect. Of the many alkaline antiseptic and other solutions that have been recommended and used in the form of spray, for the local treatment of the inflamed mucous membranes, none have ever produced such decided effect that the present writer could satisfy himself as to their actual merit. Consequently, it was with a good deal of interest that he took note of an experience published by Dr. W. S. Whittemore, in *The Boston Medical and Surgical Journal* for August 17, according to which insufflations of kaolin powder seemed to clear up very promptly the coryza and tonsillitis resulting from nose and throat infections. Doctor Whittemore employed this treatment on himself and on members of his family and found that the applications were not irritating, but, rather, distinctly soothing. Similar results were obtained by use of this powder in the case of private patients.

Not long ago, the present writer was consulted by a member of the CLINIC staff, who had a very annoying acute coryza. Having in mind Doctor Whittemore's article, a trial of kaolin powder was suggested, and the effect proved to be all that could be expected, the inflammation being allayed and the discharge of the secretion arrested in the course of half a day. It is suggested that our readers try this very simple treatment. Kaolin is an entirely "indifferent" powder. It is not absorbed and exerts no chemical action, but acts by removing bacteria from the mucous membranes and rendering them harmless by adsorption, while simultaneously binding any toxins present. The same substance has been found effective in the treatment of discharging wounds, in leukorrhea, and similar affections.

A CONTRIBUTION ON TWILIGHT SLEEP

It is refreshing to read an unbiased discussion of twilight sleep—one which, on the one hand, cannot be charged with overenthusiasm, while, on the other, recognizing the undoubted advantages of this method of producing eutocia. In the June, 1916, number of *Surgery, Gynecology and Obstetrics* (p. 156), Dr. Charles B. Reed describes his observations following the delivery of 100 women, at the Wesley Memorial Hospital of Chicago, according to a modified twilight-sleep method. He writes that 29 percent of his parturient women were practically free from pain and 50 percent entirely so. One woman said that she "suffered almost as much as when she had her menstrual flow"! By only 2 of the women relief was not admitted.

Doctor Reed declares that the objections urged against this method of analgesia are not justified. He found that there is no marked prolongation of labor; that "blue babies" are not more common with "twilight" than without it; that postpartum hemorrhage occurs just as frequently in twilight sleep as out of it—and no more so. He does not believe that the onset of the second stage is rendered unrecognizable or that symptoms of antepartum hemorrhage and uterine rupture are more likely to be obscured, providing the physician has average skill, than they would be without this use of a narcotic.

On the other hand, he finds that the strength of the woman is conserved and the convalescent period shortened; that her comfort is vastly increased; that the method does no harm, "being entirely harmless both to mother and child, when properly administered"; and, finally, it is a valuable and permanent addition to the resources of the obstetrician, much of the antagonism to it arising from an inability or an unwillingness to bestow upon a woman in labor the unre-

mitting attention and the higher technical proficiency which this procedure demands.

Contraindications to twilight sleep are: primary weakness of the labor-pains, hemorrhage, a prolapsed cord, and a lack of correlation between the size of the pelvis and the child's head.

HYPOPHYSIAL TUMOR, AND BLINDNESS

The *Therapeutische Monatshefte* for October last quotes two writers, B. Fleischer and E. Wehrli (*Klin. Monatsbl. f. Augenh.*, 1914, pp. 625 and 653) dealing with tumor of the pituitary gland and associated impairment of vision and other pathologic conditions.

Fleischer, of the Eye Clinic of Tuebingen, details 3 cases—patients ranging from 47 to 50 years in age—in which extirpation of the gland (2 reached endonasally, and by Schlosser's operation) was followed by gratifying results; the tormenting headache disappeared and the eyesight was saved; whereas blindness inevitably supervenes within a few years if hypophysiotomy is abstained from.

One of the cases, that of a woman of 38 years, described by Wehrli was as follows:

Nine years previously, this woman was taken sick, resulting in premature cessation of the menses and great gain in weight; while six months ago she began to complain of headache, tiredness, and growing impairment of eyesight. By means of ophthalmological tests and skiagrams, the presence of a hypophysial tumor was demonstrated, whereupon the patient was placed upon a course of pituitary gland (Merck's tablets), 1-10 Gram once a day, and 1-2 Gram potassium iodide three times a day. After half a year, reduction of weight, from 135, to 114 kilograms; acuteness of vision: R had risen, from 0.1, to 1.4; and L, from Hdb in 30 cm., to 0.24. The field of vision likewise was enlarged.

SUGAR FOR SHOCK

Doubtless every reader of CLINICAL MEDICINE will remember that sugar, in the form of glucose-solution, is being considerably employed by surgeons to replace hypodermoclysis with sodium-chloride solution for overcoming as well as preventing shock. This method is discussed by Doctor Burnham in *The American Journal of the Medical Sciences* for September, 1915. Doctor Burnham sets forth that the dextrose supplies energy to the cells and aids in tissue repair; that it diminishes acidosis and thus tends to remove one of the factors in the cause of postoperative vomiting; that it neutralizes certain poisons in the circulation, such as the conjugate glyceronates; and lastly, possibly acts as a direct cardiac stimulant.

Kausch, quoted by Burnham, recommends a 7-percent solution of glucose intravenously, and 4- or 5-percent solutions by hypodermoclysis. The solution should be freshly prepared (using ordinary drinking water) and sterilized. As much as 2 or 3 liters of this solution should be introduced in the space of twenty-four hours.

In addition to its subcutaneous administration, glucose may be given, in 5-percent solution, by means of proctoclysis during anesthesia and for a period of several days after operation. The administration is continued, by the Murphy drip-method, after the patient has been returned to his bed; and Doctor Burnham declares that this should constitute a routine measure after every severe major operation. From 300 to 500 calories may be introduced into the body, by one or both of the methods named without giving discomfort to the patient.

THE ACTION OF MORPHINE AND SCOPOLAMINE UPON THE UTERUS

It is very generally believed that labor is prolonged by morphine and scopolamine (hyoscine) administered during childbirth. This view is not supported by Barbour and Copenhauer, who, in *The Journal of Pharmacology and Experimental Therapeutics* for November, 1915, page 529, report some experiments conducted with the uteri of freshly killed guinea-pigs and cats, both pregnant and nonpregnant. Solutions of morphine and scopolamine, of various degrees of concentration, were applied to the uterus, when the following effects were observed:

1. Morphine, in concentrations of from 1-20 to 1-10 percent, stimulates the isolated uterus to an increase in tone.

2. Scopolamine, in concentrations of from 1-200 to 1-20 percent, increases the tone of the isolated uterus. In this respect, therefore, it appears to be about ten times as powerful as morphine.

3. No inhibitory action upon the tone of the uterus could be obtained with either of the substances. Very high concentrations of either tend to produce a tetanic condition of the organ.

4. Neither synergism nor antagonism could be demonstrated in the direct action of these drugs upon the uterus.

In another article in the same journal, Doctor Barbour expresses the opinion that neither of the two alkaloids under consideration will cause profound changes in the activity of the pregnant or of the nonpregnant uterus of the cat. Whatever inhibitory influence they may exercise upon uterine activity can not depend upon any direct action upon this organ. If there is any delay in labor following their use, it probably is due entirely to the cerebral action of these drugs.

MANAGEMENT OF ENURESIS

A very helpful article upon how to cure bedwetting is contributed by Dr. Harry Apfel to *The New York Medical Journal* for September 2, 1916 (p. 466). His method of treatment is epitomized as follows:

1. The mother should be told the proper time for the child's bath, play, exercise, time of meals, and the time for going to bed and rising; dwelling somewhat on the importance of a properly ventilated room, the temperature of which should not exceed 65 degrees. The child should not be made too comfortable in its bed. The mother should be admonished to keep the child's bowels regular. In a few words, explain to the mother the plan of your entire campaign, then request her assistance.

2. Give to the mother a written diet-list. Specify the hour for each meal. Forbid spicy food-articles, also tea and coffee. Lay special emphasis on the point that the child must receive no liquids after 5 o'clock in the afternoon—in case of great thirst, water by the teaspoonful only may be allowed. In highly acid urine, forbid strongly acid fruits. Limit pastry, also red meats.

3. Start with the supposition that a physical examination has failed to reveal pathological lesions of the central nervous system, also that there is no adherent clitoris or vulvovaginitis (girl) or a long and narrow prepuce (boy), or calculus in the bladder. Also, that the child has no hypertrophied tonsils or adenoids. If any such condition does exist, correct it, if possible.

4. Next, direct attention to the child itself and attempt to get its confidence and cooperation—which means everything, if treatment is to be a success. Give the child a vessel and ask it to urinate right in your presence, and at the word of command make it stop and then start again. In other words, train the power of control of its bladder-sphincter. (Pisek.) Tell the mother to do this once a day. Then give the child a blank sheet of paper, on which the days of the week are written, and ask it to keep its own record, by simply writing every morning either "yes" or "no" opposite the day of the week. If it is too young to write, let it put a cross (X) under "wet" or "dry," depending on whether it wetted the bed or not that night. This, the author finds, makes a great impression on the child s mind, especially if a prize is offered for a completely negative chart at the end of the month.

In the case of older children, especially in obstinate cases, passing a cold sound into the urethra may help a great deal when other methods fail.

5. The author believes that these are of less importance than the things mentioned above. At any rate, the value of drugs has been greatly overestimated. Of all drugs which were given a trial, atropine still holds first place for efficacy, if used properly. It is best given in an aqueous solution containing 1-2 grain of the sulphate to the ounce. Of this, give drop-doses, three times a day, for two days; then increase to 2, to 3 drops (Kerley), watching for dilated pupils and flushed cheeks—unless results are seen before this.

In anemic children, iron, especially the albuminate, is recommended. For strongly acid urine, potassium citrate should be given.

If the urine contains colon bacilli, that should be corrected with hexamethylenamine. In extremely nervous children, especially those prone to attacks of petit-mal, the bromides should be given in large doses.

A great deal of patience and perseverance is required both by patient and doctor, for in many cases the wetting stops, to return, however, as soon as treatment ceases. It is well, therefore, to continue the treatment for some time after a cure apparently has been brought about, in order that the patient may overcome the habit, of which it may not always be able to rid itself easily.

CALCIUM SULPHIDE IN INFANTILE PARALYSIS

In *The Medical World* (August, 1916, p 301), Dr. V. E. Lawrence suggests the use of calcium sulphide and echinacea in the treatment of infantile paralysis. He is confident that the use of these remedies will be effectual in cutting short this disease. He has not used the remedies personally in infantile paralysis, but he has had experience with it in scarlet

fever, smallpox and septicemia, with gratifying results.

In the September number of the same journal (p. 335), Dr. O. E. W. Swan declares that she has actually used calcium sulphide in three cases of infantile paralysis. In the first she also used aconitine to control temperature, a laxative saline and the intestinal antiseptic (sulphocarbolates) tablets. A brother of the child, who was also attacked, was treated in the same way, while another child made a good recovery under similar treatment.

Doctor Swan says she hopes never to encounter any more cases of poliomyelitis, but from her previous experience, she believes that under this treatment 95 percent would recover completely.

THE IMPORTANCE OF FOCAL INFECTIONS IN OBSCURE DISEASE-CONDITIONS

Some years ago, it was claimed that many cases of disease of unknown origin stood in direct relation to infected foci in the tonsils, and it was shown that very frequently the distressing clinical symptoms were remedied by the removal of the infected glands. Quite recently, the importance of bacterial infection existing in and around the teeth, as in alveolar pyorrhea, has been demonstrated, this condition being responsible for various affections the sources and causes of which have been very obscure and often have been labeled as "neuralgia" or similar general designations.

Since the French professor Dr. A. Poncet established "tuberculous inflammation" as a clinical entity, the possibility of more or less distinct inflammatory conditions quite distant from a demonstrable primary focus has been presented, and explained as occurring either in consequence of a dissemination of the infection through the blood stream or as a manifestation of bacterial intoxication. In all related studies it was especially the tonsil and more recently pyorrheal pus-pockets which were incriminated as the original foci of infection, and Dr. E. C. Rosenow (formerly of Chicago, now associated with the Mayo foundation in Rochester, Minnesota) has investigated and elaborated the important subject of focal infections in a manner that must prove of importance to the clinician. (See, for instance, *The Journal of the American Medical Association*, Nov. 13, 1915, p. 1687.)

In a paper read at the last session of the American Medical Association at Detroit, in June, 1916, and published in *The Journal* for August 26, Rosenow reports on some experiments made with infectious material obtained from the tonsils and from pyorrheal pus-pockets of patients ill with various diseases.

A number of the animals infected with the organisms cultivated from these lesions acquired the affections and bacterial localizations which corresponded to those from which the bacteria originated. The interesting point was established that localizations strikingly like those in the patients were obtained, in different animals, with the bacteria as they were isolated; but, after these bacteria had been cultivated artificially for a time or after a number of successive passages through animals, the same localization, that is, the same election of certain definite tissues, no longer was manifested.

It follows that certain bacteria or certain strains of bacteria possess a decided selective action for definite tissues, for instance, the spinal cord or certain portions of it, muscular tissues, and so on. To take one example: Lesions in or about one or more of the posterior roots occurred in 83 percent of 18 animals, following the injection of streptococci from cases of brachial, intercostal, and postherpetic neuralgia. The occurrence of neuritis in 28 percent of these animals is noteworthy. This and the high incidence of lesions in the skin, namely, 28 percent (chiefly herpes), occurred in animals injected with relatively large doses. So far as can be determined, this is the first experimental demonstration of the probable nature of this form of neuralgia.

It is difficult at the present time to explain these various results or to draw definite practical inferences, beyond pointing out the necessity of ascertaining in every instance of any disease, the origin of which is obscure or which resists appropriate treatment, the existence of a possible focus of infection from which the source of the occult disease may be traced.

These focal infections by no means are always situated in the tonsils or in pyorrheal pus-pockets. Rosenow has demonstrated that often they may be traced to an infection of the appendix or to isolated focal infections elsewhere, possibly localizations that are not accessible clinically, but can be ascertained only on necropsy. Perhaps our diagnostic methods will be developed in time so that the existence of all these focal infections responsible for obscure diseases can be discovered with a reasonable degree of certainty.

Miscellaneous Articles

Prevention and Treatment of Tetanus by Antitoxin

FOR years I have been fully satisfied as to the efficiency of antitetanic serum in preventing lockjaw and have likewise been convinced that the serum is at least of value after symptoms of tetanus have made their appearance. As a matter of course, the European war offers ample opportunities for the study of a great variety of surgical problems and beliefs, more particularly because it necessitates such a large amount of emergency-surgery. Moreover, the wounds of soldiers requiring treatment practically never are clean; as a rule, they are contaminated. Thus it was that during the early months of the conflict tetanus was of frequent occurrence, until the administration of antitetanic serum as early as possible after injuries had become a routine procedure as a prophylactic measure.

According to some of the military surgeons, tetanus now is infrequent, and they attribute this to the prompt injections of antitetanic serum. On the other hand, others insist that serotherapy has not given any convincing results in tetanus, even as a prophylactic measure, and that it is ineffective after tetanus has actually made its appearance. On the whole, however, preponderating opinion insists that every wounded person should receive a prophylactic dose of antitetanic serum, no matter how insignificant the lesion, if there is any probability of its being contaminated.

In contradistinction to these opposing opinions expressed by European military surgeons, American authors are practically unanimous in asserting the efficiency of specific preventive serum-therapy of tetanus, and this opinion has received support particularly in the experience with injuries sustained during the annual Fourth of July celebrations. As to this fact, it must not be forgotten, though, that these explosive celebrations have become much less numerous than formerly, because of the crusade for a sane Independence Day some years ago instituted by *The Journal of the American Medical Association*; nevertheless, the warning and insistent counsel repeated from year to year in all our medical journals, to have resort, in all cases of flesh-wounds, to preventive doses of antitetanic serum, has been an important factor.

In this connection, the idea suggests itself that the relative frequency of tetanus-infection and also its virulence possibly may differ in the United States and in Europe, because in the old world the war is being waged on, and in, soil that has been infected with the specific bacillus during many centuries of manuring, in that respect greatly differing from conditions obtaining in our own country. Certain it is that the experiences of American physicians and surgeons are so universally favorable to the virtues of antitetanic serum, when used as a preventive, that no medical man dare risk neglecting this precaution in all cases of wounds contaminated by soil.

It would be a mistake, however, to assume that this procedure fully meets all conditions of prophylaxis in the case of contaminated wounds, and that, with it attended to, they may be permitted to close forthwith. A little consideration will show the truth of this assertion.

The tetanus bacillus is not carried into distant organs, there setting up mechanical injuries, as is the case, for instance, in infections with the pyogenic bacteria, with the tubercle bacilli, and so forth. After having entered the wound with contaminated soil, dust, clothing or other fomites, the bacilli of tetanus remain in or near the wound without contributing directly to its seriousness, so that the wound may heal and close; but, the bacilli of tetanus continue to multiply, doing even better, for the reason that they thrive best in the absence of air. As long as the tetanus bacilli are alive and multiply, however, they produce their characteristic toxins, and these act more particularly upon the nerve-tissues; which accounts for the fact that convulsions

are the most characteristic symptoms of the disease of tetanus.

Once the toxins have reached the central nervous system, the difficulty of influencing them by means of antitoxin is immensely greater, because of the fact that the antitoxin, even if administered intravenously, does not reach the nerve-tissues in sufficient amounts to neutralize the toxins. In that case, direct treatment by injection into the spinal canal or along the nerve-trunks affords greater hope of success.

This being so, the preventive treatment of tetanus manifestly consists, not only in administering prophylactic doses of antitoxin, but, in addition, in destroying all tetanus-bacilli present in the wound. It must not be forgotten that a certain amount of antitoxin can neutralize only a corresponding quantity of toxin. If more toxin is elaborated, it must produce symptoms of intoxication, unless it is neutralized by further doses of antitoxin; and it is for this reason that the further secretion of toxins must be prevented by energetic antiseptic treatment of the wound, with a view to destroying the tetanus-bacilli harbored by it.

One of the foremost favorites among antiseptics is iodine, which, moreover, possesses the power of rendering tetanus-toxin nontoxic. It was believed, therefore, that the usual treatment of wounds, swabbing them freely with tincture of iodine, would suffice for preventing tetanus. Unfortunately, experimental investigations and clinical observation have not confirmed this opinion, and it seems that iodine can be of use only when it is applied to the infected focus, so that it can come into direct contact with the toxin before this is absorbed. There is, however, this difficulty, that iodine exercises a coagulating action upon albuminous substances and thus tends to seal up the wound, thereby only creating conditions that are favorable for the growth of the bacilli of tetanus.

It seems, then, that iodine can not be considered as the best possible antiseptic for the purpose of destroying the bacilli of tetanus, but that we must look further for such an agent. It appears to me that we have such an agent in the preparation recently elaborated by Dakin and Carrel. This antiseptic, paratoluenesodiumsulphochloramide, or, for short, chlorazene, is attracting wide attention among surgeons the world over, and it promises to prove of far greater and far more universal value than any antiseptic agent with which we now are familiar. I believe that it will be found of service in destroying the bacilli of tetanus present in any wound, and I feel safe in recommending the free use of chlorazene-solution in the treatment of such wounds.

H. J. ACHARD.

Chicago, Ill.

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[It has always been a mystery to us why so few physicians resort to tetanus-antitoxin in the treatment of perforating skin wounds, to prevent lockjaw. Veterinarians use this antitoxin *as a routine in practically all cases*. Is a human life worth less than that of a horse?.—ED.]

A RHAPSODY ON IODINE: ITS VALUE AS A GERMICIDE, ESPECIALLY OF THE TETANUS-GERM

Your editorial on tetanus, appearing on page 557 of the July number, beyond dispute is correct advice. However, what will those thousands do who are not financially able to bear the costs involved in using the serum, not to mention the thousands of accidents occurring in localities where the serum is not available inside of twelve or twenty-four hours? What are those victims to do—wait and risk infection while the serum is being obtained? I say, no! Pardon me for my seeming assumption of authority; but, then, I must call attention to the fact that every physician, no matter how poor or secluded from the world of commerce, has the one ideal drug that will destroy the tetanus-germ, as well as any other infectious germ, provided it is applied early enough. I mean ordinary tincture of iodine.

No physician, I am strongly tempted to say, ought to be allowed to practice medicine if he does not keep on hand a supply of tincture of iodine and always to hand for immediate use. I will say, though, without fear of contradiction, that no physician who ever to any extent has used the tincture of iodine and in years of practice has learned its many-sided applicability as a local application will be able to name any drug or combination of drugs that possesses greater germicidal power and at the same time less toxic or tissue-destroying properties. Indeed, I will venture to say that never any injury, laceration, abrasion or incised wound infected with any germ capable of producing blood-poisoning (and that is what tetanus is) will give rise to symptoms of infection, if the lesion is thoroughly swabbed out with undiluted tincture of iodine and then closely covered with apinol dressing within a reasonable time after

its infliction. And by reasonable length of time I mean two or three hours. [Apinol is a proprietary article not generally known.—Ed.]

You say I am a crank about iodine? I am, and I have ample reason to be so. After having been helped by it to cure pulmonary tuberculosis, cancer of the breast, and blood-poisoning in different stages and degrees, and to obviate the consequence of the bite of rabid dog and rattlesnake who wouldn't be a crank? "Seeing is believing, is an old maxim, but true, and no lesson is learned half so perfectly as that which comes by experience. I could cite dozens and dozens of cases of varied diseases and septic conditions in which iodine played a very important part in my hands and helped to save many a life.

Do not understand me to say that I deprecate the use of serum-treatment—far from that! I am just as much an enthusiast about those serums that have proved their life-saving power; but, still, I repeat, if you have not the needed serum on hand, trust to nothing but the full-strength tincture of iodine (and lots of it!) while you are waiting for your serum to arrive. You will find that you have made no mistake. It is 100 percent ahead of the mercury-bichloride solution in vogue for disinfecting wounds. However, do not merely wash out the wound as you ordinarily do with the bichloride-solution (as mistakes have been made with that), but go down to the very bottom of the injury with your iodine. It will not act as an escharotic as pure carbolic acid does, while, on the other hand, it destroys disease-germs and at the same time stimulates cell proliferation and granulation.

Do not take my word for these statements, for I am nothing but a country doctor, but try my way—and you will find the best friend, in the greatest number of complications, you ever had. I speak from twenty-eight years of experience—which ought to be ample time for a little consideration and thought.

Finally, a suggestion here that seems deserving of attention. Incorporate 5 or 10 percent of tincture of iodine in liquid paraffin and use it as a spray for the nose and throat, repeating two to four times a day, and I believe that you will find in this a positive preventive of infantile paralysis. Try it!

J. R. S.

——, Missouri.

[The high opinion which our correspondent entertains of the merits of tincture of iodine undoubtedly is fully justified, and under certain conditions this remedy may be counted on to supply an efficient prophylactic for tetanus. It must, however, not be forgotten that tetanus is a manifestation of a bacterial intoxication and that it is not due to the local action of the tetanus bacilli themselves. The bacterial toxin, once it is produced in or near the wound, travels with extraordinary rapidity along the nerve trunk, and other remedies are required for the treatment of the actual disease of tetanus.

However, since in all cases of infected wounds the possibility of tetanus must be kept in mind, and since the first principle of treatment demands to disinfect the wound with regard to all microorganisms that may be present, the immediate application of tincture of iodine or some other good non-toxic antiseptic always is good treatment, and it has been found very serviceable by the military surgeons in the European war. Of late, however, greater interest has been shown in the chlorine-carrying antiseptics. —Ed.]

SOME NEW THINGS IN THE THERAPEUTICS OF EMETINE

Among my dispensary-patients of last fall, there presented herself a poor woman about sixty years of age who gave the following clinical history: She had been suffering from chronic eczema of the right lower leg for over fourteen years, which condition was complicated, about seven years ago, by an ulcer resulting from scratching mosquito bites. This ulceration gradually extended until the sore measured about 5 cm. in diameter. The eczema had, at one time, been of the oozing type; although, when I first saw it, it was essentially scaly. The woman said she had tried about everything and consulted many physicians; but rather had grown worse.

My regret is, that I took no culture from the ulceration—which partook of that gangrenous dirty-gray appearance and was very sensitive to pressure—in order to ascertain whether any pyogenic organisms were present in the ulcerated area.

My method, which in this instance was somewhat in the nature of an experiment, was as follows:

After cleansing the ulcer with boremetine, full strength, I carefully bandaged the leg in cotton gauze saturated with half-strength boremetine-solution and sterile water, twice daily. Also, I administered emetine hydrochloride hypodermically, once a day for three

days, then every other day for three injections, making, in all, six injections of 1-2 grain each; with the result that the condition steadily improved, the ulcer healing and the eczema subsiding after all irritation had disappeared. I have not heard from this patient since she passed from my observation, that is, since over a year ago when she was discharged cured.

My reason for reporting this case is, because I believe emetine will find a large place and may prove of great value in the treatment of many chronic infections of the skin and its invaginations, and that it may yet be shown to have a germicidal effect on pyogens other than the entamœba buccalis.

I have used emetine-hydrochloride (Abbott) injections in two cases of puerperal hemorrhage, after ergotin had failed to stop the bleeding. Each time, I was surprised to see the hemorrhage controlled by a single injection, without any distressing symptoms developing; thus being able to repair the cervix lacerations at once.

Philip A. E. Sheppard

Boston, Mass.

DOCTORS AS INSPECTORS UNDER THE HARRISON LAW

After reading all the pros and cons on this Harrison antinarcotic law, I believe that the best way would be for "Uncle Sam" to appoint physicians as inspectors. The government could select men who had practiced medicine in the country not less than fifteen years, men who are often "up against it" and have most of the "hard nuts to crack." How they do manage with this new and peculiar law God only knows—I am sure no one else does.

Some twenty-five years ago, I, with other doctors gave, hypodermically, in six hours, 5 grains of morphine sulphate, and then did not relieve the suffering in a case of injury, by accident, to the nerves of the victim's forearm and hand. We had to leave that man a solution of morphine. Although he took the narcotic for days, it did no harm, neither did it relieve the pain to any great extent. Nothing seemed to do him any good, yet, this man never had taken alcohol or any opiate in any form, so far as we could find out. Just one of those strange cases.

I must repeat that this new law is a puzzle to many physicians as to what or how they should do about it. If you, dear Editor, can help my rural brethren, or, in fact, any of us doctors, to find the drug that will take the place of opiates, or can help to change this troublesome law, so that the conscientious physician is not placed in the position that now he is, then you will be a friend worth having, indeed.

B. Mosby Smith.

Los Angeles, Calif.

CORNEAL ULCERS

To the man in general practice, the man on the firing-line, the man who comes face to face with unexpected conditions, who has no time for consultation by reading authorties or is too remote from his confrères to call consultation, who stands completely alone and must at once and from his own initiative act promptly, safely, and well, in order to ameliorate suffering, save limb or limbs, organs or life itself, permit me this morning, before you start out on your busy round, to tell you of one or two things that have come to my attention during a practice extending over forty busy years.

We will now take up the subject of corneal ulcers.

It goes without saying, of course, that the eye-specialist knows all about it; but then, his office is far away and at present his fine equipment is not at your immediate disposal. It may be that he may be found listening to our talk before we get through. In the meantime, you may be facing a rapidly growing corneal ulcer, in the farm-house, the cabin, the lumber-camp, on the prairie or in the mines. The question is, What are you going to do about it? It is necessary for you to get very safely and scientifically busy, or somebody will lose the sight of an eye, maybe of two eyes. He may become totally blind. You will lose prestige.

I was taught, among many other good things handed down to me by my preceptors, that a "big dose of epsom salt is a mighty good thing for a sore eye." No reason assigned—with them, the end justified the means. Later, I found out why; which I shall show later. Now I will outline my treatment.

First of all, irrigate the eye with a 4-percent cocaine solution. This gives relief from pain and dilates the pupil, thus drawing back to safety the imperiled iris. Irrigate constantly or at frequent intervals with boric-acid solution, *very hot* (the eyeball will bear water so hot that it would burn the skin around the eye), either by means of an eyecup or by immersing the eye in a cup overflowing ful with the solution. At first trial, this seems

impossible, but the patient soon will learn how to do this, the relief from pain and inflammation experienced encouraging him in this; being told to hold his head far over and dip his eye into the liquid near the far side of the cup. In the intervals or if the condition does not call for this frequent bathing, put into the eye one or two drops of castor-oil. This, when dropped into an eye inflamed from any cause, will prove soothing and allow of the free movement of the eyeball without giving pain. This is worth knowing! Be sure the oil is of best grade and fresh.

You know that the "onion-skin" layers of the cornea, when ulcerated, will curl and roll in and hold the disease-germs in such a way that external applications of washes and germicides fail to arrest the eroding, phagedenic action on the inner and under sides of the ulcer. Now, then, take a medicine-dropper, the end of which is smooth and free from chipping or fractures and having a rubber nipple that is large and of good action, fill it full of water, and sterilize by boiling. When ready for use, place point of the tube directly over the ulcer, press out the air in the bulb, then relax the pressure on the bulb. The edges of the ulcer will begin to unroll under the suction. Jerk the dropper off quickly, and the edges will come out still more. Immediately drop in a solution of argyrol or protargol, then after a brief interval irrigate with boric-acid solution. This is the technic. A word to the wise is sufficient.

Meantime, we have been looking after the patient's general condition. He has been given tablets of calomel, 1-10 grain, till 5 have been taken, one tablet every five minutes; the tablets being chewed. Also, as soon as the tablets were all taken, we have had him take, dissolved in *hot water*, a heaping tablespoonful of epsom salt, followed by a copious draught of cold water. Repeat the epsom salt in four hours, a dose of 1-10 grain calomel and soda to be given morning, noon, and night for five days.

Immediately after the epsom salt has been taken, the patient is put to bed and then sponged every half hour with a solution of epsom salt in warm water, in the proportion of 1 to 32 (or, a heaping tablespoonful to a quart). It is best to have several gallons prepared at once.

What is the object of these baths? We take in and utilize oxygen, and we produce and throw off carbon dioxide. Epsom salt is magnesium sulphate, and magnesium sulphate has an affinity for carbon dioxide. The patient is to be bathed all over and kept between sheets or, when the solution can be applied so as to reach the entire outside surface of the body, the external bath draws out from under the imbricated covering of the cuticle the imprisoned carbon dioxide. (By way of parenthesis: This system of medication is of universal thereupeutic application and will help you out in many a severe case of fever or retained bodily poisons.)

The epsom salt in the alimentary canal sweeps out the fecal contents, and, so does for the inside lining of the body what it is doing for the outside. You have depleted the system by skin and mucous membrane, dilated the capillaries and flushed them with rapidly moving blood, drawn out the curled-in edges of the ulcer. You have applied the germicide to the germs *in situ*, removed the pain and inflammation from the eye, and by the use of the castor-oil enabled the orb to rotate without friction. You have cured the man.

To cure, is, to take care of—you have saved an eye, perhaps a life; surely, a reputation. You have done a fifty-dollar job, for which you may get one dollar or maybe only thanks for treating a sore eye. The patient doesn't know, nor ever will; but, you know and I know that you have done a God-like thing, for, we are as gods, knowing good and evil, and gods because we choose the good. Do I put it too strong?

> He who rides through the darkest nights
> And breasts the swollen streams in his errands of mercy
> Can have no title too high bestowed on him.

C. S. Cope.

Detroit, Mich.

THE TREATMENT OF ENLARGED PROSTATE GLAND

It has been my privilege to read several interesting articles on the treatment of enlarged prostate gland, contributed to your valuable journal by Dr. W. J. Robinson, of New York City. Now, Holy Writ tells us that all men are made of one flesh and blood, but it does not say, of one mind. So, while I admire the Doctor's statements from a strictly scientific point of view, I am forced to conclude, after thirty-five years of experience in treating the condition in question, in men in the various walks of life, that an enlarged prostate gland, with all its attending complications, cannot be permanently cured by means of massage or the high-frequency

current, and the physician cannot promise absolute relief from future incident suffering.

If I am correct in my contention that the early removal of the middle lobe of the prostate gland is the only way in which a complete cure can be effected and the sufferer saved from all the attending ills, then I ask, Why temporize? Why not operate in its earlier manifestations. and thus save some poor fellow man from a living hell?

Let me cite two cases that have lately come under my observation.

A man, 72 years of age, had suffered from enlargement of the middle lobe of the prostate gland for eight years; had tried all methods of treatment, but received only temporary relief. He was operated upon eighteen months ago, at the Hahneman Hospital, and now is entirely well.

A brother physician, 60 years of age, had suffered for five years from enlarged prostate gland. He was a busy man, and for a full year, in making his calls, rode in his automobile sitting on a pillow. He despaired of ever being cured, because all these temporizing methods had failed him absolutely. He told me that he had reached the end of his rope. He either must get permanent relief or he would quietly step out into the great beyond. I persuaded him to lay aside his professional work and have the diseased gland removed by the high operation. He went to the Hahneman Hospital in New York and had the operation performed, remaining six weeks building up. Today I met him, and he says he hardly could realize that he ever had had such a trouble. He looks the picture of health and is again attending to his practice.

Let me add: We can not serve two masters. Let mine be for an operation. Three weeks in Old Hahnemann, and then for good health once more.

CHAS. H. WILSON.

Middletown, N. Y.

SMALLPOX—AND THE CALCIUM-SULPHIDE TREATMENT

Apply this pink slip (my check) to the striped wrapper on my journal and see it change color! I would not miss the CLINIC, for anything. I like to read of the delights experienced by the occasional discoverers of calcium sulphide and the "awful" doses they give.

Grandfather was a physician, father was a dentist, but my ambitions were frowned upon when they tended toward matters medical, and, so, I drifted into the newspaper-game—and there is where this story opens.

Ben Hackett loafed around the office a great deal and, aside from being in the enjoyment of a constant and vigorous supply of boils, began to exhale an ever-increasing odor that was abominable—some doctor was giving him 8 grains of calcium sulphide a day for his "comforters."

March 26, 1901, we were quarantined because of smallpox in the house—my wife had an attack of confluent type. Hackett's boils and my wife's awful "mattery" condition suggested calcium sulphide to me, and I suggested the suggestion to the doctors. "No, it will cause her to abort", they said. After she had been in a comatose condition for sixty hours, the doctors pronounced her past hope. Then I took a chance. I did not *know*, but I could do no worse than hasten the inevitable. Besides, Hackett's boils kept haunting me.

I got a pound each of flowers of sulphur, carbolic acid in crystals, hydrogen peroxide, and about 350 1-grain coated calcium-sulphide pills, and a package of compound licorice-powder.

I bathed the sick woman in phenolized water, dusted her with plenty of the sulphur, to absorb the pus and prevent the gown and sheets from sticking to her. I attempted to cleanse her mouth with a tablespoonful of hydrogen peroxide—and, horror, she swallowed it! (I then believed it to be poisonous taken internally, in common with many of the laity today.) Before I could collect my wits to call help she vomited—description unnecessary to the initiated.

"If Hackett took 8 grains of that calcium sulphide for a few boils, 40 grains for my wife, who is easily five times worse, will be about right," I reasoned. So, I gave her 22 of the pills, and then a teaspoonful of the licorice-powder on top. By now, I myself was feeling pretty bad, the "shot" were as thick as they could be under my skin. So, I took 11 grains of the sulphide and the licorice-powder. In about an hour my wife vomited another mass of pus, and in it I saw some of the undissolved pills. Soon afterward, I began to feel "ticklish," but believed it due to the "scenery" just removed and the fact that I had not been in bed for nine times twenty-four hours. Consequently, I took a small drink of whisky. After a while I gave another 22 grains and a dose of powder to my wife, and when she began to show symptoms of nausea I gave her whisky. Soon after, she opened what she could of her eyes and asked

for something to eat. A cup of hot milk satisfied her, but I called a doctor, because I believed it the "rally before death." I was scientifically assured, though, that it was improvement. I slept that night.

In the morning, I repeated the bath and dosage, and by about noon the patient's bowels moved—oh, oh! oh!! As we both felt considerably better, I reduced her night-dose to 20 and mine to 10 grains, repeating it the next morning. Her next two doses totaled 36 grains, then 32, then 28, and by that time every one of her pustules had dried up and the scabs come off. Twenty-seven days later she gave birth to a 9 1-2-pound boy, now a big healthy boy of fifteen. Of the thousands of "shot" under my skin, only two developed into pustules.

As stated, I was not then a physician; but after this I was called to a good many homes where one was down with smallpox and others were "coming"—the same treatment was the rule, "because it worked," that is, because those down got up and those up staid up.

I have as little fear of an attack of variola, under the above treatment, as I have of a midnight call for croup, with calcidin and apomorphine in my handy case.

Incidentally, I have lately received a No. 8 case. If it were the only one in the world, money couldn't buy it—I had what I needed —and, brother, doesn't it make a fellow feel "lumpy" in the throat when that awful agony goes out of a mother's eyes and the baby cuddles down in a natural sleep!

ALBERT A. DAVIS.

Port Angeles, Wash.

THE TREATMENT OF GENITOURINARY DISEASES WITH ELECTRO-COLLOIDAL IODINE

The treatment of genitourinary diseases, particularly the treatment of specific urethral infections, is an ever fruitful source for discussion. I need not dwell upon the annoyance to the physician and the disgust of the patient when, after an apparent cure, the latter returns with a fresh outbreak of the discharge or with sequelæ of the infection, the reasons for which need not be discussed here. These accidents, I have found, may be avoided by treating such cases with the electrocolloidal iodines as made by Viel.

In gonorrheal infections, it should always be borne in mind that in 90 percent of the cases a posterior urethral infection is present. If this fact is overlooked, there will be absence of results, no matter what therapeutic remedy is employed. To my observance of this posterior infection and to my strict adherence to the technic as given in the literature on the electrocolloidal iodine I ascribe my success in treating this condition.

The urethra should first be washed out with a mild boric-acid solution, fairly warm. The syringes and catheters must be perfectly dry and sterile. Lubricants must not contain water. For a few visits at the beginning of treatment, it is better to inject enough of the iodine preparation in the urethra to fill it, the patient retaining the injection for ten minutes and then allowing it to drain out slowly, without stripping. The diet and other management should be as suggested in the textbooks. When using these remedies, it is better to pour out the necessary amounts into a small graduate which is placed in hot water; but care must be taken that the water covers only about three-fourths of the graduate. The heat enhances the action and, besides this, renders the preparations more limpid. The following cases from practice may serve for illustration.

Case 1. Man, age 23. Acute gonorrhea; complicating balanitis. Deep injection of electrocolloidal iodine three times daily for eight days. Application of a dressing of the same remedy, held by bandage over the parts affected, daily for eight days. Internal doses two or three times daily. Discharged cured. Reported a few times for examination during a period of three weeks. No reappearance.

Case 2. Man, age 28. Acute anterior and posterior gonorrhea. Deep injections daily for ten successive days. No complications at all. Reported one week after interruption of treatment. No need for further attention.

Case 3. Youth, age 17. Acute anterior gonorrhea with complicating herpes. Urethral injection of electrocolloidal iodine three times daily; later, daily deep injections Topical dressing for existing herpes cured the condition after four applications. Parts were well smeared, then covered with wool, and the dressing was changed once in twenty four hours. Kept on with injections for twelve days in order to be sure. Patient discharged. No return of either trouble.

Case 4. Man, age 25. Chronic urethritis Had been treated for a long period. Sound massage, bladder washes, all kind of capsules and pills and mixtures, and injections of various medicaments were tried. The patient worried and troubled and became utterly discouraged. No stricture and no prostatic trouble was present. Here, I used deep injections of electrocolloidal iodine, after

washing out the bladder, also the same remedy internally.

I continued daily treatments for two weeks, although the morning-drop disappeared during the first week. No return. Cured. Very comfortable both day and night while under treatment.

Case 5. Man, age 59. Mild chronic pyeolonephritis, with mild acute croupous exacerbation; chronic prostatitis, with hypertrophy of prostate gland, urethritis, and irritation of bladder. Frequency of urination followed by pain, and quite copious discharge from the urethra, this coming from the prostate gland, and so forth, were the annoying symptoms. I used the ordinary bladder washes, internal remedies, and so forth, but without success. Then I washed out the bladder with mild boric-acid solution, then injected the iodine. He responded at once. I did this for ten successive days, then every other day. The relief was marked, all frequency and pain having disappeared. Then I began using topical applications in the form of rectal suppositories inserted each night. The last analysis of the urine showed betterment. There were large numbers of the bacillus coli communis present in the urine, but these have diminished. He is using the Bulgarian bacillus tablets with apparently good results. Patient still under treatment.

Case 6. Man, age 62. Lithemia, with mild hemorrhage from the pelvis of the kidneys and mild pyelitis, also mild interstitial nephritis. Irritation of bladder. Frequency of urination, with pain following; pain in the back, weakness, and so forth, distressed him greatly. Bladder lavage with warm boric-acid solution, followed by instillation of electrocolloidal iodine into the bladder every three days, has made him a great deal better. Patient still under treatment.

Case 7. Man, age 26. Pustular acne of 18 years' standing. Furuncles opened as they appeared, then the iodine dressing was applied on neck and face nightly. Marked improvement followed this. After two months of treatment discharged cured.

Case 8. Man, age 30. Acute epididymitis. Intense pain and swelling. Iodine dressing freely. Covered with wool. Had him wear a good suspensory. Dressing was changed once in twenty-four hours. First dressing gave instant relief. On the fifth day all swelling had gone. Patient still wears the suspensory bandage, but the dressing is no longer needed.

Case 9. Man, age 63. Acute orchitis. Much pain, some fever, swelling of right testicle, and so forth. Was called to his home. Applied dressing of electrocolloidal iodine freely, then covered with wool. Ordered a suspensory to be worn. Gave a sedative tablet, to relieve the pain. In twenty-four hours, all pain had disappeared and he is able to be up and about. I have ordered the dressing only during the night.

Case 10. Man, age 40. Acute epididymitis. Same treatment as in case 9. Marked relief in twenty-four hours.

Before I had tested the topical use of iodine in this form, I always used ichthyol, 50 percent in glycerin; in fact, followed out the treatment suggested by Guiteras, of New York, in his work on urology. Now ichthyol is too expensive, as 4 ounces of it cost over 7 dollars. I find that the dressing indicated gives more immediate relief.

FRANK MACKIE JOHNSON.

Boston, Mass.

FRACTIONAL DOSAGE OF SALICYLIC ACID FOR INFLAMMATORY RHEUMATISM

Ever since Kolbe, in the year 1874, by his invention made salicylic acid available for general practice, this substance has been esteemed the best, perhaps the very best, remedy for acute articular rheumatism; yet, although its specific virtues are being universally acknowledged, for a long time this substance has been prescribed but sporadically in its original form of the free, uncombined acid.

Very early in its therapeutic career objections began to be raised against this medicament, the first, and most important, being, that it was so sparingly soluble, and then—largely grounding upon this indisputable fact—that in its free state it exerted an irritant and corrodent action upon the gastric mucosa and after its entrance into the circulation (also as free salicylic acid) it not alone produces irritation of the renal structures, but gives rise to constitutional disturbances in general and specifically to various unwelcome side-effects, notably derangements of the auditory apparatus and vision, to tendency to vomiting, dyspnea, and other toxic symptoms.

As a consequence of these accusations, the mitigated sodium salt of salicylic acid early became the vogue, the uncombined acid soon falling into "innocuous desuetude." Innocuous? No, not quite so—as J. Zadeck,

of tl e Municipal Hospital of Neukoelln, Germany, essays to prove in a preliminary publication (*Muench. Med. Woch.*, May 14, 1915, p. 614); for, he and his associates consider that these many years the entire medical profession has been chasing a phantom. As evidence of the truth of his assertion, Doctor Zadeck points to the ever-multiplying salts and condensations and similar derivatives of the salicylic radicle, of which the latter is the sole remedial element.

This fact, he maintains, should demonstrate to all that, beginning with sodium salicylate (suggested by Senator), up to aspirin and the later compound esters, all have been relative failures in the relief and cure of the painful disease in the treatment of which the prototype originally gained fame. (The same phenomenon is witnessed in the case of other diseases, the remedies for which multiply in proportion to the comparative or total lack of curative virtues of all those proposed and haphazardly prescribed.) Moreover—a fact universally overlooked—those newer derivatives finding greatest favor are those in which, successively in their appearance, the salicylic radicle (in the respective synthetics) is chemically more and more loosely attached; in other words, more readily split off and set free in the animal-economy.

And here we come to one of the principal arguments. As early as 1876 (two years after its introduction as a cure for inflammatory rheumatism), Stricker (*Berlin. Klin. Woch.*, 1876, Nos. 1, 2, 8) devised a rigid plan of dosage for securing the maximum of benefit with a minimum of disadvantages from the use of salicylic acid; and therapeutic results were assured from this regimen. But with the advent of the placebos, this proved principle of administering the medicament—and upon which assured success depended—was lost sight of and a haphazard system of dosage took its place. And, furthermore, as one new derivative after the other was put upon the drug-market, not alone was the sphere of indications widened beyond that of purely acute articular rheumatism (antineuralgic, antithermic, antihemorrhagic, and so on), but emphasis began to be placed more and more upon a given preparation's harmlessness in comparison with its predecessors, and, above all, free salicylic acid.

Here, the author submits, are reasons a plenty why the treatment of inflammatory rheumatism is not as satisfactory as it might, and should, be; limited successes with the placebos not being denied, of course.

At this point, Doctor Zadeck asserts, pointedly and unqualifiedly, that: salicylic acid (free and combined) is unexcelled as a therapeutic agent for the cure of acute articular rheumatism, provided that the exact procedure laid down by Stricker is strictly adhered to; that, the diagnosis being correct, the remedy is harmless; that under these circumstances it gives rise to such slight side-effects only as eventually constitute the unavoidable expression of every potent remedy, and as such may unhesitatingly be taken into the bargain.

As for the various deleterious effects charged against salicylic acid (free), the author admits that they all may, perhaps, be produced to some extent; just the same, they all represent nothing but innocuous concomitant phenomena that never leave any permanent damage: in fact, during an experience of many years, neither the author nor his colleagues were ever tempted to desist from their practice as herein set forth. Serious general symptoms were never observed, while any "gastric corrosions" at no time have given them alarm. The technic being correct, these symptoms remain within the "ordinary" (Stricker) limits, and can well be overlooked in the presence of the prompt and permanent objective and subjective improvement of the patient.

In this connection, it is pointed out that as the first sign of impending toxication may be considered the marked deepening of the respirations and a peculiar dyspnea. This actually was observed to set in in a very few instances, but no complications or lasting results occurred. Indeed, an early resumption of the medication followed, since *the full and complete therapeutic effect of the drug had been attained with the appearance of deepened respiration.*

This therapeutic effect, needless to state, is evidenced by a prompt decline of the patient's temperature and, more important, recession of the inflammatory swelling of the joints; and, with this, the almost complete cessation of the excruciating pains and restoration of mobility.

This happy result, however, Doctor Zadeck continues, cannot be secured as promptly and, yet, in so simple and harmless a way by any other means than with salicylic acid administered in typical dosage—and it is principally, because of these considerations that he urges a return to the use of the plain mother-drug. No doubt, he adds, similar results can be secured with the various salicyl-derivatives; and, they are entirely superflu-

ous, at all events, for reasons already indicated, while, naturally correspondingly larger amounts must be ingested in order to get the needed dose of the fundamental salicyl-radicle. Certainly, since the side-effects in every respect must be the same, reason speaks for adhering to the simpler substance if by a special procedure these can be reduced to a minimum. And this entirely neglects the question of economy.

It was just with the view to obviating these side-effects that Stricker devised his plan of dosing, and the idea, concretely, is, to administer plain salicylic acid in reduced but frequently repeated doses; 1-2 to 1 Gram (8 to 16 grains) once every hour until the effects above described are attained.

This formula was modified some years ago in the interest of the attendant as well as the patient, by extending the interval to two hours, but doubling the dose, to now 1 or 2 Grams (given in capsules or cachets); no difference in therapeutic or recognized undesirable effects being noticeable. The total daily dose ranges between 8 and 12 Grams, or, from 120 to 180 grains. The essential, important feature is that the doses be small and the short intervals scrupulously regular; thereby ensuring an uninterrupted pharmacodynamic action and affording resting-pauses for the stomach. In addition to the fact that the placebos are being prescribed in greatly reduced dosage the foregoing important point appears to have lapsed into general forgetfulness.

In this connection the reasons for this old-new mode of drugging [Entirely in line with Burggraevian practice.—Ed.], also, why all succedanea can be spared may be elucidated. Other substances, of entirely different chemical constitution (e. g., atophan), have been found to affect inflammatory rheumatism in the same favorable manner as does the salicyl-radicle; and that, exclusively, is—to repeat—the abatement of the febrile and the painful inflammatory condition of the joints. No other therapeutic effect is expected from any of the specific antirheumatics. None of these medicaments (nor any other recognized therapeusis—baths, for instance) is capable of preventing relapses or inflammatory cardiac complications.

While, then, none of the prized antirheumatic specifics are truly such, it behooves the medical attendant to afford that relief so urgently demanded by the victim, and the method proposed furnishes the means. Given the typical symptomatology, he has before him the clear indication for instituting the typical salicyl-therapy as herein explicated. Whenever there are pronounced rheumatic fever and painful inflamed joints, whether primary or recurrent, this therapy is sure to be crowned with success.

And right here, following the author: if the patient can be freed of his sufferings and made to feel "well" within twelve—eighteen—twenty-four—at most thirty-six hours, he will be quite content to suffer temporarily some nausea and noises in the ears; for, the force of the attack is broken, and *he comes out better* than under the current "harmless" regimen of "innocuous" salicylic synthetics or salts and cautious dosage. This latter course inevitably means a protraction of the febrile and painful condition over days and weeks, and, with it, the ingestion, for a prolonged period, of the salicylic preparation.

The obvious deduction follows: Salicylic acid (nor its congeners) does not prevent the deleterious organic degenerations consequent upon rheumatism; the undesirable side-effect produced by it can be minimized by the heroic course recommended, inasmuch as the noxious chemical must do more harm the longer the system is subjected to its influence; while, with the prolongation of the rheumatic process, chances for the organic changes are multiplied. The cogency or bearing of the following, textually connected (and literally rendered), passage is not quite clear to the abstractor: "hence, convinced of the necessity of the amount of salicylic acid coursing in the blood in a high degree of concentration, we welcome precisely that very insolubility that favors this demand, and, consequently reject everything calculated to enhance the solubility and, thus, eliminability of the salicylic acid; therefore, as a general rule, do not [simultaneously] administer alkalis."

However, as was already pointed out by Stricker, one empirically established rule must not be overlooked: The same or only slightly diminished dosage must be continued for fully eight days after all fever has disappeared, individual conditions controlling the size of the doses; for, although there is no guarantee, this measure does serve in a large degree to act as a prophylactic against relapses or heart complications, inasmuch as the rapid abatement of the acute symptoms favors a more normal course of the disease.

The author adds that this heroic course has been followed in the presence, in "innumerable" instances, of old as well as acute (recurrent) cases of cardiac affections, without at all taking cognizance of these, and always with the same marked results. Consequently,

heart diseases constitute no more a contraindication than do existing tuberculosis, diabetes, lues, and other constitutional diseases.

In conclusion, a very few cases of rheumatism were encountered in which the treatment under consideration proved absolutely unavailing.

Author's résumé: Pure salicylic acid has been unjustly rejected in the treatment of acute rheumatism of the joints. A correct technic and method, besides a certain experience (presupposed), constitutes a medicament unsurpassed in celerity of action and, yet, harmless, in fact, decidedly helpful, in that it obviates all torturing procedures and manipulations (baths, and the like); consequently, it is excellently adapted for the treatment of rheumatic affections whenever swelling and inflammatory manifestations, generally associated with fever, have set in. At the same time, all derivatives of salicylic acid, however justified and appropriate they may be in other conditions, are entirely dispensable and superfluous, if not, indeed, harmful.

ADOLF G. VOGELER.

Chicago, Ill.

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[The doses of salicylic acid recommended in this article will seem exceedingly large to most of us, and we question very much the tolerance of many persons for 120 to 180 grains of salicylic acid a day, to be "continued [even in reduced dosage] for fully eight days after all fever has disappeared." It may be that German patients will "stand for" more than American patients; certainly, none of mine are so tractable as to endure the terrific gastric distress, head-noises, and other side-effects of salicylic-acid medication on this scale, even if these disagreeable effects should prove to be "innocuous." The idea of frequently repeated administration ***at uniform intervals*** appeals to us; but we much prefer "***small doses*** frequently repeated." The hint, that "the full and complete therapeutic effect of the drug had been attained with the appearance of deepened respiration," should be investigated by other physicians, as well as the suggested signs of salicylic-acid toxicity.

Salicylic acid has a well-established place in the treatment of rheumatism; it is valuable beyond doubt, but it ought not to be considered the sole remedy or even the best remedy in every case. Indeed, we have more faith in ***thorough elimination***. In treating these cases we believe in a low-protein, meatless diet; in painstaking and persistent purgation, plus colonic cleansing; in intestinal antisepsis, always with appropriate remedies; in flushing the capillaries by hot-baths, hot epsom-salt compresses or by baking; in alkalinization with remedies like calcalith or sodoxylin; perhaps, also, in streptococcic bacterins, although with this we have had little experience.

We want to know what "the family" think about rheumatism. The subject must be of interest to you.—ED.]

SOME SPECIAL VIRTUES OF ACETANILID

The American people seem always to be going from one extreme to the other. The sage maxim "***Medio tutissimus ibis***" has never become popular on this side of the Atlantic. In fact, if the average American were to be advised, from motives of precaution, to take the middle car of a railway train, he probably would decline, on the ground that he would be caught either in a head-on or a rear-end collision.

Thus, having passed through the period of extravagant laudation, acetanilid seems now to be falling into the state of complete desuetude that usually follows. Nevertheless, it is too powerful and too valuable a remedy to be allowed to go into the discard. Its power of promptly and tremendously reducing febrile temperature fits it for many cases where nothing else quite takes its place.

In sunstroke and in temperatures exceeding 105 degrees occurring in the course of any malady, there is imminent peril of speedy death from paralysis of the brain. Whether acetanilid exerts any influence over the causal factors of the hyperpyrexia is not the question—while we argue the point the patient dies. The fever-heat is the direct cause of death, and this temperature must be brought down to a safe point very quickly; and for this we have no remedies equal to acetanilid, except the direct application of cold (which may not be available).

We may even have to give, at once, full maximum doses of the drug to get its effect, for this is one of the remedies to which we can not apply the mathematical rule and say: If ten grains of acetanilid reduce the temperature ten degrees, one grain will reduce it one degree; two grains, two degrees; and so on.

Like pilocarpine, acetanilid acts all at once, fully and decidedly, or not at all. I have never succeeded in securing "slight perspiration" from pilocarpine. Give a milligram

every five minutes, and you get no appreciable effect until ten doses have been taken, and then the patient swears the sweat is running through the mattress to the floor.

So with acetanilid: give a grain every half hour, but you get little febrile depression, until the temperature drops to or below normal with a suddenness that sends one skurrying for stimulants to combat collapse.

In temperatures below 105° F., the coal-tar preparations have been almost completely superseded by the defervescent alkaloids, which are safer, at least as effective, and far more easily regulated. Besides, the action of aconitine, and especially of veratrine, in opening the eliminants and letting toxins out of the system is so necessary in all infectious fevers that they have deservedly replaced the coal-tar synthetics.

But acetanilid has other uses, and for them it is invariably employed as the *principium*, the leading ingredient of a combination. An infinite number of compounds have appeared and have won popularity. Here are a few examples:

(a) Acetanilid, grs. 3 1-2; sodium bromide, gr. 1; caffeine, gr. 1-4; codeine sulphate, gr. 1-4. This is a good formula for severe pains, inflammatory, neuralgic or respiratory. It may be given every two to four hours, but needs watching, as cyanosis may appear. (b) Acetanilid, grs. 1 2-5; caffeine, gr. 1-5; sodium bicarbonate, gr. 2-5. For abdominal pains; repeat every hour. (c) Acetanilid, grs. 2 1-2; quinine sulphate, grs. 2 1-2. For high temperature in malaria; an excellent combination. Repeat every two hours till fever falls. (d) Acetanilid, grs. 3 1-2; caffeine, gr. 1-2; sodium bicarbonate, gr. 1. For severe neuralgias or headaches, provided the bowels are well freed first. Once in two to four hours is dosage enough. (e) Acetanilid, grs. 2; ammonium bicarbonate, gr. 1-8; veratrine hydrochloride, gr. 1-128. A good combination for fevers when there is severe headache also. Give every hour. I like it the best of all these compounds, because it does the work, giving speedy and permanent relief. Besides, the addition of veratrine supplies the one thing lacking in acetanilid—elimination of toxins. The dose of ammonia is too small to do much, but it slightly relieves acidity and acts as a mild stimulant.

Still another, powerful, combination is that of acetanilid, sodium salicylate, and ammonium bromide, equal parts. Try this in your next "mean" case of acute rheumatic fever, when the patient is howling for quick relief. Give ten grains every one or two hours, till relief.

Nearly every active clinician has his own favorite formulas for acetanilid, and when a man finds a happy combination he is apt to stick to it. I used the last-named one for many years and thought it too good to warrant experimenting, but this veratrine compound is fine.

DIAGNOSIS. URINARY EXAMINATIONS. DIABETES

The writer has been impressed lately with what seem to be facts as to certain practitioners who have been successful from a business point of view, yet, who do not cure their patients—at least not as many as they should, or might, cure. The average doctor often does not take the time to make a correct diagnosis: a few questions are asked, the patient is given some purgative medicine, and he's ready for the next. The physic removes some of the intestinal mess, and, of course, the ailing person feels better for a few days or weeks; and is satisfied. Before long, though, he is obliged to consult the doctor again.

Query No. 6055, page 1174, December, 1915, issue, of THE AMERICAN JOURNAL OF CLINICAL MEDICINE impressed me profoundly —and sadly. The doctor (I presume) asked why iodine was used by surgeons, and what is an ampule. These questions, and the others, look ridiculous, really, and need no comment.

I wish every general practitioner in the world could, and would, read what Dr. George F. Butler has to say to us about the treatment of chronic diseases. (See the January and March numbers.) No man can do a chronic sufferer any good without knowing what is the matter with him. In acute diseases, he has standing at his back a better man than he himself is (namely, the natural forces) that will do the work, anyway—if he will not interfere.

Now, here we come to the point, and I am going to relate my own experience with a patient just a few days ago, and which is only one of many. You can do just as I did, if you will, but I venture to say that comparatively few physicians make a habit of carefully examining their patients' urine.

Do you think the urine is of no importance as an outlet for a cleanup? In this case, the urine furnished me with a key which served me to arrive at a correct conclusion, and thus to the diagnosis. It is very little trouble to

press a piece of litmus-paper to the patient's tongue; and to know whether the saliva is acid, alkaline or neither is of some value. It is information!

I was talking to this man socially, when he turned the conversation to his complaint. I did not know that he was a sufferer. Said he: "Doctor, for three years I have been the rounds, but no doctor yet has done me much good. I have the headache nearly all the time. My stomach is out of fix. I have taken enough pepsins and digestants to swim a mule. My bowels act occasionally, and occasionally I pass a handful of jelly about like the white of an egg, but no blood. I sleep well, but get up with the headache. I have worked most of the time, but never feel like doing so. The joint of my neck is always sore and it hurts to turn my head. I have a very good appetite most of the time."

I asked him whether he ever had his urine examined. No, nobody ever had done or suggested that. I then told him that most likely sugar, indican, and probably other abnormal things were present in his urine and that he suffered from general acidemia. He thereupon procured me a sample of his urine extemporaneously for an immediate test, which gave these results: specific gravity, 1030; very acid; indican present; sugar present. This was enough in the way of tests (except for albumin, which was absent), and they were made in five minutes.

Now, here is a pointer: A good test for sugar is as follows: Mix two-thirds of the suspected urine with one-third of a 5-percent solution of potassium hydrate (caustic potassa) and a pinch of bismuth subnitrate, then boil for two minutes in a capacious test tube. If sugar is present, a grayish, brown or black precipitate will appear, the tint depending upon the amount of sugar present. For indican, mix in the proportion of two-thirds of urine and one-third of c. p. hydrochloric acid, add a few drops of solution of peroxide of hydrogen or a solution of potassium permanganate, mix, then add 10 drops of chloroform, and shake well. If indican is present, the chloroform will dissolve it out and make a shade of blue proportionate to the relative amount of indican present. However, to be real nice about it, I suggest that you send to The Abbott Laboratories and get an indicanmeter, also an acidimeter, together with the reagents all combined. It will pay you well.

"Now let me ask you. Did you ever drink alcoholics to excess?" "No, doctor, I never was drunk in my life." Asking further, I found that up to about seven years ago this man had drunk some whisky and beer every day for about two years. And here I will say, most people think drinking to excess means "getting drunk" every day.

The man's liver was found to be slightly enlarged and a little harder than normal. So, now you have the diagnosis. Then I explained:

"You have liver trouble. Very probably you will never be cured of this trouble, but you can improve your condition by proper diet and medication, to the extent of relieving your headache, which results from faulty elimination and body-chemistry. We can call it amyloid liver. The stomach is not wrong, but you have stasis in the small intestines, from the lack of bile and pancreatic juice, and the food remains in the stomach because it can't get any further down—it has no room to go to. All these pepsins you have been using have been useless. There is nothing wrong with the kidneys: this sugar and indican are only manifestations of something else wrong back of them."

Well, this man wanted me to treat him. I had shown some interest in his case and made these tests right before his eyes, and he believed what I said was true.

There were only two things to be done—stop introducing foods that will make excess of poison, and clean out and clean up.

I put him on a modified Allen treatment for diabetes (still accepting the glycosuria as a symptom), which means, no food. (See page 76, 207 and 254, 1916, A. J. C. M.) I allowed him to eat sauerkraut, cabbage, tomatoes, and a little light bread, and kept him on this only long enough until the sugar disappeared from the urine, which occurred in two days. I had him to take 3 drams of sodium bicarbonate per day, and 2 drams of sodium phosphate per day, and prescribed the following mixture: Specific medicine chionanthus, 2 ounces; specific medicine echinacea, 1 ounce; specific medicine peppermint, 1 ounce. Directions: 1-2 teaspoonful every four hours, with plenty of water.

In one week, the man's headache was nearly gone; the urine was alkaline and free from sugar; the saliva was neutral; bowels were acting. Very little, if any, weakness was felt from being on short rations. I am now going to allow him a little fats and sugar, and two hours after eating give him bilein and pancreatin, enough to get intestinal digestion.

Understand, I do not think that I shall cure this man. But I do expect to lengthen his life and afford him considerable relief, so

that he can work in comparative comfort while he lives. I told him as much, and he does not look for a cure; still, he knows fully that I have done an honest piece of work.

No wonder to me that the world gets full of doubt as to the value of medicines and of the men who prescribe them. This man had proof that the half-dozen doctors he has been to in the past did not do their duty, either from wilful neglect and laziness or from sheer ignorance. And he is only one case in countless thousands.

Who will be the next man at the bat?

T. H. STANDLEE.

Edgewood, Tex.

A DAY ON THE BOSPORUS

It was dawn of a perfectly beautiful day when we entered the Bosporus from the Black Sea. This scene, always beautiful, was exceptionally so this October morn. Having been there before, this was a delightful return visit. Roberts College, that worthy American institution, Miss Patrick's American Missionary School for girls, the Golden Horn, Constantinople, and St. Sophia were visited.

Having always been an admirer of Florence Nightingale, I betook myself to Scutari, across the Bosporus from Constantinople, where still stands the old barracks hospital where her great labor was performed. Here are the old barracks that had been used for the Turkish soldiers, and which still are used for them. It is in appearance much as it was in '55, during the Crimean war, when shiploads of sick and wounded were sent here from the Crimea for Florence Nightingale and her coworkers to nurse, and save if they could.

Nearby on the bank of the Bosporus, running water looking toward Mecca, was the English cemetery, where the dead were buried in lots of from ten to fifty, all who had died during the past twenty-four hours. They were buried in one common grave, unmarked, save in the instances of surgeons, clergymen, and nurses. Some of each profession were there. In one instance, two medical men were buried together, having died the same night.

Just over the wall were the Bulgarian prisons, and a cholera epidemic ravaged among them. The cemetery is beautifully kept by Major Lyn, a veteran of the Crimean war, who was nursed by Florence Nightingale. One particularly neat and well-kept grave was that of the United States Consul, who had served for fifteen years at Constantinople. He was born at Rochester, Minnesota.

E. S. MCKEE.

Cincinnati, Ohio.

PHYSICIAN AND DENTIST

Kindly define the difference between physician and dentist. I am hopeful of learning just how much of a dentist's work the law permits a physician to do, and how much medical work a dentist is allowed to do within the law.

Would a physician thoroughly trained as a mechanical dentist—that is, having pursued such training that will fit him to do the mechanical work—be allowed to fill teeth, fit crowns, bridgework, and the like, without having been graduated from a dental college or having passed the state board's examination?

W. L. SELLERS.

Ringstree, S. C.

[Dr. Chas. G. Wright, M. D., D. D. S., a dentist practicing in Chicago, to whom the foregoing interrogatory letter was submitted, kindly favored us with the following reply:

"If anyone desires to practice dentistry anywhere in the United States, it is necessary for him to write to the secretary of the respective State Board of Dental Examiners of the state he has in mind as to the requirements which the state in question demands of a person wishing to engage in dental practice in that commonwealth.

"In a general way, any person is regarded as practicing dentistry or dental surgery, within the meaning of the law, who treats or professes to treat any of the diseases or lesions of the human teeth or jaws, extract teeth or prepare and fill cavities in teeth, correct malposed teeth or supply artificial teeth as substitutes for natural ones. Most of the state dental laws have a provision that nothing in the act is to be construed as preventing regularly licensed physicians from extracting teeth or treating stomatitis, and that registered dentists are permitted to administer general anesthetics when necessary in their practice.

"In the advance that has recently been made in dentistry, it often is found necessary to have radiograms taken of the teeth and jaws, and examinations made of the various fluids of the body, in making a diagnosis, and etiquet suggests that when systemic treatment is called for a medical practitioner be

consulted as to the treatment to be inaugurated."—ED.]

THE AMERICAN TROPICS

I have read with unusual interest Doctor Hollman's articles on the Mosquito Country and the opportunities it offers. However, while the Doctor presents a fair and interesting description of that wonderful region, there are various other features that should be considered seriously by everyone contemplating exchanging his residence in the United States, with all the luxuries, conveniences, and opportunities that the best modern civilization offers, for the primitive existence in the tropics.

It is true, of course, that there is a peculiar fascination about the American tropics. A land of unusual natural beauty, the soul-stirring romance and tragedy of the days of the conquest, gold-laden galleons sailing the Spanish main, pirate-ships and buccaneers, tropical isles, sapphire seas, and spice-laden breezes have filled the picture that our vivid fancy painted as we read the stirring chronicles of those bold old days.

Have you ever felt the tropics calling, calling 'neath moonlight,
When nectar-scented, drowsy-sweet, the vagrant land-breeze blows
And the stars seem glittering jewels in the sable dome above you,
While the rising sun, at dawning, tints the eastern sky with rose?

It is said that an American who has lived eighteen months in the tropics is doomed to spend the remainder of his days there, always longing for the north, but unable to break the enchanting spell that the tropics throw around him. And, in a general way, this may be true. There seem to be no halflikes or dislikes, you either are charmed by the tropics or you hate everything that smells of garlic or sounds like Spanish.

I do not want to be classed as a pessimist, for, I like the tropics and their peoples; but, there is another side of this life, and a few suggestions anent certain conditions not clearly outlined in the picture painted by our good friend may be helpful to those contemplating choosing the tropics as a place of residence—one may not say "home."

You who read in your morning's paper the news of the world, as you sip your fragrant coffee with real cream and eat hot muffins with creamery-butter, must make up your mind to forego these comforts, and the memory of them will ever haunt your dreams if you go to those tropical countries to live. No butter, but little milk—and that boiled and more often scorched and salted—will grace your table. Coffee you will have, and you may learn to like it, even if it is only a fluid extract of the berry that will "float a pow-point" or "put a crimp in your hair."

There are to be found there practically no cook-stoves or ovens, so that, naturally, the whole dietary scheme is unique, not alone as to the articles of food, but in the manner of preparation.

Memory still paints for me a vivid picture of a certain Thanksgiving-Day dinner that the good wife had patriotically arranged for some of our isolated American friends in one of the Spanish-American countries. A tough native turkey was procured as the *pièce de résistance*—although all tropics-bred fowl served on the table appear to have been fed on the leaves of the castilloa elastica and religiously retained the rubber in their system. A sort of mestizo pumpkin, packed some leagues into town on mule-back, supplied the material for the pie customary to the Day. Our cook, with characteristic Latin assurance, claimed that he could make elegant pumpkin-pies, for he once had cooked for an American army-officer; when, however, the pie appeared upon the table, Shades of Puritan Mothers! there were two crusts, with chunks of sweetened boiled pumpkins between. However, each guest heroically did swallow one bite of the mess.

The food and cooking are not the only problems that have to be overcome or swallowed. There is the rain, rain, rain, and then the mud. Then, in the morning, one's clothing is so clammy and so smelly—even though you follow the "strange" foreign custom of taking a daily bath—and green with mildew if not worn every day, besides one's having to acquire the habit of tunking them before donning them, to jar out the scorpions, and centipedes and other visitors.

Furthermore, the tropics are the "home of the wailing donkey and the all-abounding flea." It is wonderful how long and how persistently a flea can crawl when it is under your clothing or in your bed and can not jump. Writing about beds in the tropics, the less said about them, the better. Day by day, so many times a day (except in the dry season), you have to lug your bedding out into the sun and rush it in again between showers, else it becomes too musty even for an "immune." Then, though the days are warm or even hot, you will need blankets at

night, and many times people go to bed early in the evening because of the chill, penetrating moisture in the air, and you are so "thin-blooded." It is a fact that the continuous high temperature of the tropics in conjunction with the humidity wears out those not to the manor born, it "gets on your nerves," and you long for a change to the crisp, dry, invigorating autumn days, long even to see the snow and the ice and to breathe the frosty air of the wintry North.

A person planning to go to the tropics must be prepared to forego schools, society, church, a comfortable home—I was about to add, and friends; but, then, one surely knows some loyal souls who will write to you, now and then. So, you will look forward to the "steamer-days." and the tears will come and your heart will ache if the hoped-for letters do not arrive. I feel very sure that Doctor Hollman's mail deluge was a Godsend and that as soon as he possibly can he will deliver up to the correo the necessary *oro* to get the remaining letters out of hock.

In making up your mind, you must remember that the language, the customs, the laws, the people, all and everything are different. In those Spanish-American countries, there is no law sustaining you in self-defense or in defense of your home. If a robber (and there are aplenty of them!) enters your house, you must submit or run away. If you should happen to kill or injure a highway-robber or burglar in the act, unless you can prove that it was accidental, you are liable to a sentence of thirteen years, eight months and twenty-one days in prison—and heaven pity those who must languish in one of those carcels, relics of medieval times!

While the tropics are rich in natural resources, a relatively large amount of capital is required to develop them, and I would warn Americans not to go to those regions without being assured of ample means for getting back to "God's own country." The tropics sorely need missionaries of Doctor Hollman's type—cleancut men of high ideals and moral courage. The moral status of many tropical countries is not as high as it is in North America, and there is no public sentiment to support the spineless. Many a young American, filled with dreams of conquest, has fallen quickly after setting forth among these natives; for, the American habit of "doing things" appears to apply also to evil as well as good, when he once gets started that way. Drink is not conducive to efficiency or longevity in the tropics; and drunkenness is not the only vice that flaunts itself there.

To the reader, I will say, unequivocally, if you possibly can, make a voyage to the tropics; the more extended, the better. You will find it one of the most interesting and delightful trips imaginable. Embark on one of the liners that touch at Central American ports. Upon landing, go up into the magnificent plateau region of Guatemala, Honduras or Costa Rica. You will find a strange, beautiful country, far more foreign than Europe, and a people polite and interesting. It is a bit of old Spain in tropical America.

But, take my advice, before you decide to make your home in any of those sunkist regions, wait until the novelty of this new—yet, old—region has worn off ere you burn your bridges; and, above all, remember that those lands are not an ideal place to raise a family in, if you want your children to be North Americans, like yourself. The health-risk is not as great as most North Americans imagine, at least not, if you take good care of yourself; still, the risk is much greater than in the United States. The wonderful strides that tropical medicine has made in the last twenty years has limited the efficiency of that "grim destroyer," fever, that hitherto has so jealously guarded one of the richest regions of the world against the invasion and conquest of the civilizing white man.

I have touched upon some of the most serious drawbacks of the tropics, as during an extended sojourn in Spanish-American countries they have impressed me. Yet, with all the heat and rain and discomforts and squalor, the tropics still call.

Then, go away, if you have to go,
Then, go away, if you will!
Again to return you always will yearn
While the lamp is burning still!
You've drunk the Chagres water
And the mango have eaten free,
And, strange tho' it seems, 'twill haunt your dreams,
This land of the coconut tree.

Chicago, Ill. N. S. Mayo.

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[Well! Now you have the other side. Since Doctor Mayo has lived in the tropics, he knows the conditions to be found there far better than does the editor. On the other hand, Doctor Hollman has spent thirty years of his life south of the Rio Grande and knows every turn of the road leading toward success or failure in that beautiful, bizarre, rich, and undeveloped land.

In our own opinion, there are men who are peculiarly adapted to an adventurous pioneer

existence in countries like Honduras. Such men will be happy far from the "comforts of civilization." But, for the majority, perhaps, these comforts have become necessities. The only way to tell surely to which class you belong is, to investigate for yourself. Do not stake your all on the experiment.

Our advice is, to visit Honduras—and then come back home and think it over. If two or three or more of our readers care to go down and see Doctor Hollman, it would be pleasant if they could arrange to go together, and we herewith offer our services to put such a group of men in touch with one another.

Doctor Hollman is now in the United States. He called on us only a few days ago. The impression we got was that of a cleancut man of unusual ability, who is anxious to be of service to others and to develop the wonderful land in which he lives. Of course, we have no interest (except that of friendship) in his proposed colony.—ED.]

A SIMPLE REMEDY FOR LEG ULCER

It doesn't seem possible that one or two weeks of rest, and the daily morning application of gauze soaked with pure glycerin, held in place by an elastic bandage, would cure ulcer of the leg. But it does. Try it and be convinced. The action is really marvelous.

O. F. WELCH.

Westport, Ind.

THE DIRECT OR INDIRECT CAUSES OF PELLAGRA

After considerable experience with pellagra, in my opinion we are absolutely in the dark in regard to its etiology, and I do not believe that any of the present-day theories can stand on their own merits.

My personal idea is, that the disease is due to an organism which exists somewhere in the gastrointestinal tract, causing putrefaction and fermentation of food, probably the fats and carbohydrates, resulting in a condition of extreme acidosis. To my mind lues plays a very important part, and I think the two conditions are closely allied. I am taking into consideration possible mistakes in diagnosis.

I had a case of pellagra in a married woman who traveled extensively, wined and dined at the best hotels in the country; who gave a luetic history and showed a xx Wassermann; she died promptly. Regulation of diet, no matter how well the latter be selected, will not cure all cases of pellagra, and I do not believe that improper diet will cause pellagra in selected cases.

Negroes are more prone to the disease than whites, but the mortality among them is slight as compared with that of the whites who have contracted pellagra.

I have positively cured a large percentage of my cases with salicylate of mercury given once a week and pushed to the point of tolerance. Martin of Hot Springs is giving salvarsan with a great deal of success. Sodium cacodylate is useful if given in large doses, 15 to 20 grains every other day for four treatments, this course to be repeated after ten days' rest. Very often I combine the two drugs, salicylate of mercury and cacodylate of sodium, giving the injection of mercury one day and following it with the cacodylate the next.

C. M. BECK.

Memphis, Tenn.

[Mercury and arsenic have both been found very serviceable in the treatment of pellagra, the arsenic in the form of salvarsan as well as of the cacodylate of sodium. According to our understanding, results tend to show, however, that smaller doses than those employed by Doctor Beck are effective. We are anxious to receive light on this subject. In the administration of mercury salicylate or of sodium cacodylate, the addition of novocain will be found of advantage in that it diminishes the pain of injection. In the general treatment of pellagra the value of intestinal antisepsis must not be overlooked, and we may remind you of the very satisfactory reports of Doctor Bowling published in CLINICAL MEDICINE concerning his use of intestinal antiseptics. Calcium sulphide is also unquestionably of great value. We greatly appreciate Dr. Beck's paper.—ED.]

Pregnancy-toxemia forbids the use of chloroform, calomel, and mercurial antiseptics.—Williamson, *American Medicine.*

Chionanthus, given with chelidonin, bryonia, gelsemium, and veratrum, we have never known to fail to effect a permanent cure of gallstone attacks.—*Medical Summary,*

Hering found that cats and dogs may die at the beginning of chloroform-narcosis, and the more excited they are, the more sudden the death may be.—*Medical Standard.*

In the diseases of children, if fever arises, aconitine will serve better to control than any other drug. It is a safe agent, properly employed.—Servoss, *Medical Summary.*

Just Among Friends

A DEPARTMENT OF GOOD MEDICINE AND GOOD CHEER FOR THE WAYFARING DOCTOR

Conducted by GEORGE F. BUTLER, A. M., M. D.

(*Continued from October issue, page 881*)

As I have stated before, the struggle of the ages has been the emancipation of truth from authority. No thoughtful physician can fail to see the immense advantage of maintaining a liberal mind in the pursuit of his calling. It is of signal importance that the doctor not alone should welcome every advancement in medicine, but he should at all times be willing to put the broadest construction upon opinions conflicting with his own.

Every physician having the interest of his profession and of humanity at heart should admit candidly the value of any method, theory or practice that may promote the common object of alleviating human misery, taking the generous view of things, without which the pursuit of learning is but a jaundiced, melancholy affair.

Fortunate it is for him who has learned the charity and liberality that characterize all genuinely great or progressive men in every profession. His open heart and intellect are spared many a regret and, throughout his career, for him the sun of truth is shining everywhere.

If we find our pathways obscured by shadows, it is because we are walking away from the light, and not toward it. The sacred flame that glows upon the altar of truth illuminates and cheers only as we approach it.

If we wish to progress and influence humankind in the right direction, each of us should be modest in the presence of nature, fearless in the face of authority, unwearying in the pursuit of truth, and absolutely free to seek it in our own way.

Freedom's secret wilt thou know?
Counsel not with flesh and blood;
Loiter not for cloak or food;
Right thou feelest, rush to do.

The Theory of Drug-Therapy

THE theory of the treatment of disease-conditions with drugs rests upon (1) the nature of the demands which disease causes, (2) the evidence that drugs possess that which is demanded, and can produce it at call, and (3) the proof that whatever aid is given can be safely withdrawn when it has performed its service, in other words, that its temporary employment may impart a lasting benefit.

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Place.—The first demand for the use of drugs, made by disease concerns itself with the place, as to whether it is to be local or general. A sore throat or an inflamed larynx may be treated by local medication, whatever drug we use being aimed at the disease directly. But, when the affection is one of a deep-seated organ (when this is, for instance, an unstable nerve-center or a sluggish liver), then the remedy must be introduced into the circulation, through which it is distributed to every part of the body, appearing more or less freely in this or that part, according to the vascular ramifications, passing indifferently those cells that do not demand its aid, and eventually reaching its intended goal by the working of the law of selective cell action; so that, in fact, the effect is as truly localized, after it is absorbed, as it would be by direct local application.

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Time.—The second demand of the disease is that of time: whether the disease is acute and temporary, or chronic and indefinitely prolonged. The acute disorder, having a more or less determined course of its own, is characterized by a turning-point, after which the disease proper has come to an end and the practitioner has to deal only with its after-effects. But as at any moment during the progress of the disease excessive strain may result to the organism and thus endanger life, the chief therapeutic indication is, to gain time, prolonging our efforts until the natural

term of the disease is reached, so as to pass the critical point in safety.

This is to be done, principally, by means of stimulants; that is, agents calculated to liberate reserve energy at the proper time and in the proper place. Stimulant treatment, however, is to be administered with nice judgment, bearing in mind that stimulants do not create energy, but simply make available energy that otherwise would not be released. They should, therefore, be withheld as soon as the critical point has been passed, since their further action would be, to drain the reserve.

In chronic disorders, the rule for the employment of stimulant treatment is different, its advantage becoming more and more questionable as the disease lengthens its course beyond certain limits. Nevertheless, there no doubt are some chronic patients who would be the better for the habitual use of small doses of stimulants, properly regulated. In these cases, however, the purpose is not, to increase resistance, but to improve digestion, the enhanced assimilation more than repaying the slight loss of energy occasioned by the stimulant itself. Therefore, if ever the habitual use of stimulants is advisable, it will always be in relation to food; but they should never be taken in the intervals between meals, in an attempt to arouse dormant powers.

When the disease consists simply in a disturbed balance, due to the withdrawal of some factor that belongs to health, and which has not the effect of a direct attack upon the vital powers (e. g., myxedema, resulting from perverted activity of the thyroid gland), there is, of course, no demand for stimulation.

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Mode.—The third demand of disease is that of mode, in which the question is, How may drugs be fitted to meet the exigencies of the occasion? Thus, in fevers, for example, that are due to the entry of a new factor into the organism, how may the exhaustion which they produce be best combated? Sheer stimulant treatment manifestly ignores the possibility that the new invading element itself may be open to attack.

It is here that the value of antiseptics becomes apparent, by means of which we make war on the microbe of infection. If these do not suffice, there is a second mode of procedure, that of neutralizing, with antitoxin, the toxin through which the germ inflicts its injury, and of increasing the body's resistance by means of vaccines. And, lastly, we may treat the symptoms, the secondary causes, opposing a parched skin with a diaphoretic, a fever with a febrifuge, constipation with a purgative, renal insufficiency with a diuretic: and so on; availing ourselves of drugs which, influencing the organs in this way or that, are adapted to restore the functional balance of the latter.

But there are also bodily states in which, while the whole system appears to be lacking in vitality, no particular organ or function seems to be affected. In such cases, we give medicines whose stimulative effects fall upon the whole rather than upon any part. These are called tonics. In those cases where the morbid state of the entire body is in the nature of a perversion rather than a lack of tone, we have a class of drugs whose effect is, to change the metabolic processes of the organism. These drugs are known as alteratives.

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Physiological Balance.—In health, the parts of the human organism are so related to each other, so poised and interactive that they constitute a perfectly coordinated balanced whole. In the large sense, of course, it is impossible to affect any part of this organized body without affecting the whole, or reversely. Practically, however, disturbances do occur in which the influence upon the whole or upon the part, as the case may be, predominates to an extent that clinically classes them as either general or local diseases.

Nevertheless, we rarely meet either class of disease even in its clinical singleness, each usually being accompanied by some manifestations of the other, so that in the majority of cases it is necessary to combine local with general treatment. Local remedies often have no effect upon local affections until joined with a systemic remedy; so, also, general disorders frequently refuse to respond to purely general treatment, yielding only when some local affection has been treated and removed.

Wherever symptoms appear, however, whether general or local in character, they are evidence that the system has dropped from health to disease and that the physiological equilibrium is disturbed. As long as the term "health" is applicable to the body's condition, this balance is intact.

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Pathological Balance.—There is another kind of equilibrium of the organism, and this may be designated as the pathological balance; that is to say, the ability of the organism as a whole to adapt itself to the

presence of a morbid influence and to assume a new balance; which, if it is not the balance of health, is the best that can be done under the circumstances. There are innumerable examples of such a condition, varying from the slightest ailments to the lowest levels of invalidism; and these call for every cautious procedure in treatment, since it often is difficult, if not impossible, to measure the degree of instability of the part. Moreover, there usually is present some symptom which when appearing in a healthy body would at once be recognized as a morbid departure to be actively attacked, but which, remaining here as a symptom of long standing, must be regarded rather as a factor in the pathological balance and to be left severely alone.

The best example of the body's power of self-adjustment doubtlessly is furnished by the action of the circulatory system, as manifested in three special forms; namely: (1) anastomosis, (2) relation between blood pressure and pulse, and (3) compensating hypertrophy. The following ideas are elaborated more fully by Sainsbury in his book on "Principia Therapeutica."

Anastomosis.—The vascular tree furnishes a system of canalization that provides for more than the ordinary needs of the body, the anastomotic branches forming a potential circulatory path, which, remaining latent in ordinary conditions, is pressed into use when the chief channels of current are obstructed. The disturbance in a given capillary varies in inverse ratio to the activity of the anastomotic circulation—a fact which lends to the organism a reserve power in this direction that is almost inexhaustible. Nevertheless, each demand, slight or great, that is made upon this reserve, means a proportional weakening of it, thus placing the body at that much disadvantage.

Relation Between Blood Pressure and Pulse.—According to Foster, the rate of the heart-beat is in inverse ratio to the arterial pressure; and the significance of this law lies in the fact that through its operation there is maintained a steady rate of flow through all the vessels. For, as blood pressure rises in the arteries, it must be followed by a quicker passage of blood into the capillaries; so that, to store the balance, a decreased rate of pulsation becomes necessary. This maintenance of an even current means a steady expenditure of force throughout the body, and this tends to stability.

Compensatory Hypertrophy.—Every obstruction in a hollow muscle is answered by a hypertrophy of the muscle wherever there is good metabolism. Indeed, this law may be extended to include all muscular tissue, throughout the body; such issue being seen to hypertrophy at every call for increased activity. To be sure, there is a limit to this overgrowth; and the hypertrophied muscle, having already expended some of its store of energy, is not in the same position of advantage as a normal one. In the case of the cardiac muscle, it must be admitted that the most highly compensated heart throbs at a lower functional level than does the normal organ; and it is imperative that the physician bear in mind that this mechanism of self-adjustment, wonderful as it is, has its limits, beyond which it is fatal to stray. Yet, this does not invalidate the incontrovertible proof here furnished of the powers of adjustment possessed by the tissues, which is constantly endeavoring to preserve the body's balance against disease-disturbance.

This compensatory power is possessed and exercised also in other systems, whose functions, excretory and secretory, are part of the complex body-chemistry. The vicarious part played by the skin, the lungs, the intestines, and by other organs in disability of the kidneys is a familiar example of this complemental relationship.

Whenever the balance of health is disturbed, the organism endeavors to return to its habitual normal state. Moreover, no matter how great the diversion from the normal, the organs and tissues never lose utterly their characteristic activities—these are inherent and not to be destroyed.

In administering remedies, we do not put extra virtues into the body; we arouse, or attempt to arouse, that which already is there, although sleeping or injured. This is the reaction which, as I have said in my introduction, is characteristic of modern therapeutics. We can not create, we only can condition the manifestations of activity.

Therefore, we may assume as one of the first essentials of applied therapeutics that in the administration of any remedy we should at least be certain that it will do no harm. We may be able to modify the internal workings of the various organs, increasing or decreasing their action, as well as influence their interaction upon each other—that we can do, no more; and we cannot always do even this.

It has, for example, been found by experiment, that the heart would better be left to itself to meet an obstruction by undergoing hypertrophy, or, that the leukocytes may be trusted to deal with a microbic inva-

sion without our aid. It was this tendency of the body to resume, after disease or injury, its balance, that the ancients named the active remedial principle within the organism, the *vis medicatrix naturæ*—a term that well describes those reserve powers with which the tissues respond in cases of emergency. But, these powers are in excess of the ordinary vital tone, to be drawn upon only in times of great stress; every demand upon them being necessarily, met by a greater or less impairment of their vitality.

It may be remarked that this same *vis medicatrix naturæ* has formed a convenient foundation upon which to erect numerous so-called "systems of healing," which, without it, never could have a shadow of excuse for being. The healer claims the credit for the cure, and he claims it all the more confidently because of never even having heard of a *vis medicatrix naturæ*. The fact is, that this recuperative principle often is so powerful that a healer's efforts, fortunately have little effect upon the organism, favorable or otherwise.

The reputable physician openly avails himself to every possible extent of this natural tendency toward restoration. However, there are times when the working of this self-adjusting mechanism seems to have a contrary effect, even threatening life. The reaction of inflammation in laryngeal diseases, where the swelling of infiltration, which might be of no significance in other parts, assumes a critical aspect, multiplying the dangers instead of diminishing them; the dangerous increase of intramuscular tension, due to the firm fibrous casing of the eyeball—itself so essential to the ocular functions—maintaining, as it does, that organ's definite globular form, are familiar examples of this fact. It will be found that this unfavorable response on the part of an organ to body repair is in direct ratio to its degree of specialization, being, in fact, a clash between the specialized functions of the organ and its subservience to the general organism and when such specialization occurs within the sphere of a vital function there is danger to life.

Consequently, we are obliged to examine each case of disease carefully, in order to determine whether the natural trend is healthward (as it is in the majority of cases), or whether the reverse obtains, with conditions of such a nature that they must be interfered with at all cost; always the *vis medicatrix naturæ* is in proportion to the degree of discrepancy between specialization and general process, and whenever this attains a certain height the balance passes beyond natural recall and demands the intervention of therapeutics.

Another application of the negative-side treatment consists in the observance of a principle which endeavors to keep at a distance all disturbing elements, so that the recuperative powers may act unhampered; in other words, the principle of functional rest. This may be brought about by mechanical means, by chemical action or by application of our knowledge of physiology, which enables us to give rest to one part at the expense of another.

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Thus, the ends may be attained, either actively or passively; also, either directly and from the morbid part itself, as when by tying an artery, we destroy an aneurysm; or, indirectly, as in the employment of a purge and a diaphoretic in acute inflammation of the kidneys. Whatever the means, the intention is, to induce a condition of rest at the seat of disease, a "healthening" of the local vital energy and the storage of force and material out of which to rebuild both tissue and potential.

Following are a few practical examples, familiar to everyone, of the application of this principle:

The darkened room in all diseases of the eye.

Rest in bed in heart troubles.

The employment of milk in ulcerated intestines and in localized peritonitis.

The isolation of neurotic patients.

The use of splints in cases of broken bone.

The fixation of the chest in acute pleurisy.

The removal of all disturbing psychic elements in tetanus and other conditions.

It should, however, be borne in mind that the application of this principle of rest is capable of being overdone, since the laws of health demand that the body shall have breaks of activity as well as of passivity, and that too great a preponderance of rest will result in an abolishment of the power of function, instead of its restoration.

Where the function is an intermittent one, as in the process of alimentation, we may compromise the matter by extending the intervals between its activity, as, for example, the intervals between meals. Or, we may decrease the intervals and furnish less work for the function during the time of its activity; that is to say, in the case of digestion, for instance, we may give frequent small and easily digested meals.

[*To be continued.*]

Among the Books

KOLMER: "INFECTION AND IMMUNITY"

A Practical Textbook of Infection, Immunity, and Specific Therapy, with Special Reference to Immunologic Technic. By John A. Kolmer, M. D., Dr. Ph., Philadelphia: W. B. Saunders Company. 1915. Price, cloth, $6.00, net.

"The day is past when the physician and surgeon can relegate the things of immunity entirely to the laboratory. Diagnostic methods and reactions and the field of specific theraphy—vaccine, serum, and chemo—are subjects of such practical importance that it is obvious that the physician and the student of medicine can no longer be merely mildly interested onlookers. The physician who injects salvarsan, a serum or a vaccine, or who uses a diagnostic reaction, must be prepared to explain to his patient the nature of the therapy he employs and the significance of the reaction. This he can do only by equipping himself with the knowledge of the fundamental factors of immunity, or he will be forced into the position of a passive transmitter of ideas entirely beyond his own knowledge."

This paragraph from the author's preface presents a complete justification of the volume before us the purpose of which is, not only to present to practitioners and students of medicine a concise account of our present knowledge concerning the many problems of infection and immunity, but also to furnish all those engaged in laboratory work a guide to the various immunologic methods, as well as to outline for students of medicine and those interested in these branches a laboratory-course in experimental infection and immunity.

The literature on the subjects covered by the title of the book has assumed such immense proportions that it is not a cause for wonder that this treatise has attained to the unusual size of 867 pages of text. Rather, the astonishing part is that the author should have succeeded in condensing the relevant information in a single volume, instead of filling two or more.

Considering the presentday views concerning the bacterial etiology as well as treatment of a great variety of diseases, it is plain that the way in which infections are accomplished and the manner in which they are resisted by the organism must be studied carefully. For the physician who desires to avail himself of the advantages that are presented by the etiological treatment of bacterial diseases, it is not sufficient to know that a certain disease is caused by this or that microbe, but he must know how these microorganisms affect the organism, how the organism reacts to a given invasion, how the infectious disease may be recognized, and how it may be combated by the very means that have given rise to it. All these problems are discussed and explained in an unusually acceptable manner in Doctor Kolmer's treatise.

Constant consultation of this work for more than a year past has but increased the Reviewer's admiration and has aided him in arriving at a better understanding of the problems under consideration. It is true that, in the last instance, these problems cannot be presented as definitely determined facts. The student will realize and must keep in mind that the entire science of immunology still is based upon theory; but, if the theory enables us to arrive at a satisfactory explanation and to treat infectious diseases the better, then it has accomplished its purpose.

Doctor Kolmer's work explains to the physician the causes of infectious diseases, it aids him in recognizing and in treating them. Moreover, it affords instruction in laboratory-methods anent the infectious diseases, and consequently, is of service to physicians, to laboratory-technicians, and to students of immunology alike.

"THE NATIONAL FORMULARY"

The National Formulary, Fourth Edition. By authority of the American Pharmaceutical Association. Official from September 1, 1916. Printers and binders, The J. B. Lippincott Company, Philadelphia, 1916.

Despite its long and honorable history and useful career—having had its inception away back in 1856 and its full birth in the year 1888—the National Formulary, it is feared, is not as generally familiar to the members of the medical profession as it should be—to many of them it being but a name and

thought of as a mere collection of formulas for skin-lotions, shoe-blacking, and imitation proprietaries of interest only to druggists.

As a matter of fact, the "N. F." is as much a pharmacopeia as is the "U. S. P." itself; and, while a large percentage of CLINICAL MEDICINE subscribers are self-dispensers of ready-to-use active principles and other drugs and chemicals, nevertheless, but few practitioners can entirely forego prescribing galenical preparations, and, for this latter purpose, the doctor must know what is official at the time being and obtainable at either the pharmacy or the drug-jobbers.

Space limitation forbids entering into details; suffice to say, categorically, that now, more than ever, the National Formulary, albeit yclept a "formulary of unofficial preparations," is, in fact, a part of the official pharmacopeia. For, besides containing formulas for unusual galenicals prescribed by physicians here or there, it has become the repository of those preparations for one or other (often poor!) reason expunged from the "real" pharmacopeia. Furthermore, the National Formulary at present is as absolutely legal standard as is the United States Pharmacopeia itself. Which suggests a personal reflection - first saying that "Extra-Pharmacopeia" would seem to be the more appropriate title.

The writer of these comments was, for many years, actively connected with retail pharmacy and has been associated with pharmaceutical and medical journalism, and he here confesses that he has viewed with much misgivings the latterday evolution of the United States Pharmacopeia—the growing domination of the teaching theorists and the laboratory-scientists over the practicing pharmacists having wrought great detriment, in the opinion of many, to pharmacy as a gainful profession. The idealist has strangled the practicalist.

The office of a pharmacopeia (*pharmakon*—remedy; *poiecin*—to prepare) is, to supply a standard to the apothecary for galenicals commonly prescribed by the physicians of his community. That, for the United States, means our country over. What object, then, is subserved in having one small, "official" collection and a second, big, "unofficial" one, but both legally binding?

The present revision of the Formulary has 354 pages devoted to simples and galenicals, all having precisely the same legal and medical status as has the text of the Pharmacopeia. Surely, common sense would seem to suggest putting them all alphabetically into one volume. The man behind the prescription-counter and he "behind" the prescription-tab will swear that there is altogether too much juggling done by the "professors," in the way of shifting from one "list" to the other, changing of the nomenclature, and expunging. No wonder busy practitioners are unfamiliar with these two authoritative books. As to the Formulary, numerous specially invented preparations will remain unused—as this writer has pointed out years ago in *The Western Druggist* and in converse—as long as the formulas are not accompanied by an explicit commentary regarding their nature and purpose and employment.

One cannot here consider the various features of this Formulary, except to say that, in its makeup, it now parallels the Pharmacopeia, alongside of which this book ought to have a place on every doctor's shelf. As for the formulas themselves, they have been worked out painstakingly by the best men in the profession and with the collaboration of the Council of Pharmacy and Chemistry, the United States Public Health Service, and of specialists.

The substitution of the term milliliter (mil, mils) for cubic centimeter (Cc.) already has been mentioned in these pages; in this only following the usage of the United States Bureau of Standards. A useful feature is the chapter on sterilization, which will serve as a practical guide to many a tyro. Another excellent idea is that sensible abbreviations of drug-names are presented for use by prescription writers.

The changes in titles and the additions and deletions of preparations are so numerous—unfortunately! one is inclined to exclaim—that this fact alone seems enough to impel every doctor to give this volume close attention. Thus, for instance, "fluidglycerates" constitute a newly added class; petrolata saponata are now called petroxolina, unguenta extensa are called mulla; and we now have salia effervescentia for the former name of pulveres effervescentes, pilulæ glycerylis nitratis for p. glonoini, elixir cinchonæ alkaloidorum for e. cinchonæ, and elixir terpini hydratis et diacetylmorphinæ for e. t. h. cum heroina.

MANN: "PRACTICAL PRESCRIBING"

Practical Prescribing and Treatment in the Diseases of Infants and Children. By D. M. MacDonald, M. D. London: Oxford Medical Publications. 1915. Price $1.50.

The prescriptions offered in this little volume throughout adhere to the British Pharmacopeia. They are largely galenical. The general suggestions and directions for treatment and management of the patients are very acceptable.

CHILD: "INDIVIDUALITY"

Individuality in Organisms. By Charles Manning Child. Chicago: The University of Chicago Press. 1915. Price $1.25.

In "Senescence and Rejuvenescence," a book published by the same author, and which was reviewed in these pages in October, 1915, he was concerned chiefly with the periodic change of the age-cycle in the organic individual as one aspect of the life-cycle.

The present book—"Individuality in Organisms"—deals primarily with the problem of the nature of the unity and order in the organism, the constancy of character and course of development, the maintenance of individuality in a changing environment, and the process of physiological isolation, disintegration, and integration, or individuation, in reproduction. The idea of individuality is not limited to that of the self-conscious, reasoning entity, but is treated in its physical or physiological meaning, down to the cell, which biologic entity, because of its behavior, constitutes an individual, as much as does each human being.

As has been said in the review of the older book, the importance of biology, for an understanding of the complicated processes of life, is being realized in an increasing degree, and the present effort by Professor Child in many respects is complementary to his earlier work.

ABRAMS: "DIAGNOSIS AND TREATMENT"

New Concepts in Diagnosis and Treatment. Physico-Clinical Medicine. The Practical Application of the Electronic Theory in the Interpretation and Treatment of Disease. With an Appendix on New Scientific Facts. By Albert Abrams, A. M., LL. D., M. D. San Francisco: Philopolis Press. 1916. Price $5.00.

Doctor Abrams is well known through his work on spondylotherapy, and his views concerning the causation, recognition, and treatment of disease—which, to say the least, are novel—have called forth the liveliest protests on the part of orthodox authorities. Fortunately, Doctor Abrams has the courage of his convictions, and his teachings too firmly are supported by practical observations and clinical results than that they could be cast aside merely because they are new. We confess to having approached the perusal of this book with rather a sinking heart and to having found it hard reading; but, then, that is due only to our own insufficient acquaintance with the author's teachings in general. Nevertheless, we are impressed with the force of his arguments and with his methods of investigation as well as his system of treatment. Physicians who are acquainted with spondylotherapy surely will want this book. Others cannot do better than to study both, this work and the earlier one, entitled "Spondylotherapy."

LEWIS: "DISORDERS OF THE HEART BEAT"

Clinical Disorders of the Heart Beat: A Handbook for Practitioners and Students. By Thomas Lewis, M. D., D. Sc., F. R. C. P., Third Edition. New York: Paul B. Hoeber. 1916. Price $2.00, net.

In contradistinction to other books on heart diseases, the author of this volume limits his discussion to certain symptoms that may manifest themselves in connection with the function of the heart and which are manifest in the physical examination. In the eight chapters of his book, he deals with sinus arrhythmia, heart-block, premature contractions, simple paroxysmal tachycardia, auricular flutter, auricular fibrillation, and alternation of the heart. In the discussion of his subjects, he has availed himself of the extensive and valuable acquirements of recent studies of the heart, and he presents these new facts and conclusions that are of chief service at the bedside, in a form in which they may prove of value to the general practitioner.

BROCKBANK: "HEART DISEASE"

The Diagnosis and Treatment of Heart Disease. Practical Points for Students and Practitioners. By. E. M. Brockbank, M. D. New York: Paul B. Hoeber. 1916. Price $1.25, net.

In this little volume, the author discusses the clinical recognition and diagnosis of various forms of heart affections. He gives instructions as to how to examine the heart, and what to look for. A short chapter on treatment is appended, in which a few remedies that influence the heart directly are discussed, while greater stress justly is laid upon rest and suitable diet.

Condensed Queries Answered

While the editors make replies to these queries as they are able, they are very far from wishing to monopolize the stage and would be pleased to hear from any reader who can furnish further and better information. Moreover, we would urge those seeking advice to report their results, whether good or bad. In all cases please give the number of the query when writing anything concerning it. Positively no attention paid to anonymous letters.

Queries

QUERY 6252.—"Persistent Temperature. Morning Diarrhea." P. H. P., Ohio, has a patient, a girl five years old, who has been sick three weeks. At first he thought she had typhoid fever, as for a few days she had a slight fever; but no bowel symptoms developed, although the fever remained. Her tongue is clean. The elevated temperature ranging between 100° and 101° F., persists. Still, the child does not seem very sick. No rales are discernible in the chest. The girl would get out of bed if she were permitted. "What," asks our correspondent, "may be the matter with her, and what should we do in those cases where there is increased temperature following an attack of bronchitis, and so on? It occurs to me that iodized calcium would be helpful when a mild infection and temperature persists."

Here is another question. A man, aged fifty-five, strong and of good habits, personal history negative so far as it relates to his present condition, is troubled with diarrhea. It seems that at about 5 o'clock in the morning he has a loose bowel movement. Why it occurs at this particular and unusual time I do not know. Of course, his bowels are too free at all times, but always they act at around 5:00 a. m. A number of physicians have treated him, but without success. I also have exhausted my skill. What is your opinion?

We regret that you did not send specimens of urine and a blood-smear from your little patient (case 1) with the persistently elevated temperature. As a rule, thorough elimination—by kidneys, skin, and intestine—and the administration of calcium sulphide, echinacoid, and quinine ferrocyanide as alternants, will remedy the condition, as described, in short order.

You do not give us a clear enough idea of the clinical conditions generally, so as to enable us to discuss the case more intelligently. In all acute respiratory disorders, calx iodata may be administered with advantage; but, then, you do not state definitely that such condition existed—you merely say, "I decided that she had some bronchial trouble." What about the tonsils? Is the child's appetite good and digestion satisfactory? Give us a little more light, doctor, and we probably shall be able to aid you more intelligently.

2. In all probability, we can make a definite diagnosis and outline effective treatment in the case of the man afflicted with the chronic diarrhea, if you will send a specimen of feces and urine (4 ounces from the 24-hour output, stating total quantity voided) to our pathologist, for examination.

One or two injections of emetine hydrochloride, followed by a course of berberine or hydrastine, and this by the prolonged use of the bulgarian bacillus, probably will meet the requirements. The wearing of a flannel belt will prove decidedly beneficial.

Discover just when and how this diarrhea started. Has the patient at any time used alcohol to any extent? What is his occupation? It might be well to examine the condition of the rectum. Ascertain the area of hepatic dulness. See, also, whether you can palpate the spleen.

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QUERY 6253.—"Infantile Paralysis?" L. D., Washington, asks what diagnosis, other than that of temporary paralysis produced by the toxins of a severe tonsillitis, could be made in the following case.

"In a family of four children, the eldest, five years of age, had tonsillitis, from which recovery was complete and rapid, then the one of three years had an attack, and here also recovery was complete, except that marked prostration continued for a week. Next, on June 29, a very severe attack of tonsillitis developed in the 2-year-old child. On June

30, it was unable to stand on its left leg, the knee giving and bending in under the right leg (which remained unaffected). On July 1, the child was extremely excited, and very sensitive to noise, and opisthotonos set in. July 2, it was less excited, but would not permit either leg to be manipulated. July 3, it was much better and continued to improve steadily for the next three days, but was nervous. July 7, the child crept a little, but we discovered that, while the left leg seemed fairly good, the whole right leg was paralyzed. Since then, however, improvement has been steady, until now the child walks a little.

"The child did not have diphtheria. Also, none of the 15 or 20 playmates of these children were taken sick."

As you can readily understand, doctor, it is absolutely impossible for us to venture a definite diagnosis from the meagre facts presented. For one thing, you do not state the mode of the onset of the attack, nor the range of temperature, nor do you give any information whatever relative to the nature of the infecting microorganisms. For, such pronounced systemic disturbances as here portrayed could hardly be expected, save in the most severe forms of streptococcic angina. Has there or is there now albuminuria? You say positively that there was no diphtheria; consequently, we assume that throat-cultures were made and the presence of the Klebs-Loeffler bacillus definitely excluded.

There is little question in our mind that—in the case of the 2-year-old child, at least—there was some meningeal involvement, possibly pneumococcic; but it must not be forgotten that just such a clinical picture as here shown may present itself in the milder forms of acute anterior poliomyelitis. If you will give us further light, doctor, we shall be able to discuss the matter more intelligently.

Considering all the facts, we should hesitate to exclude this last-named disease.

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QUERY 6254.—"Sugar Content of Bacillus Bulgaricus Bouillon." J. C., West Virginia, desires to be informed as to whether the culture-medium used for the above named preparation is that of Cohendy (that is, a mixture of milk-whey and cane-sugar), and, if so, whether it can safely be prescribed for diabetic patients.

Bacillus bulgaricus bouillon consists of a pure culture of the bacillus bulgaricus in a special bouillon containing whey, various salts, lactose, and dextrose. After this bouillon has been inoculated with the bacillus bulgaricus and properly incubated, each tube contains a small amount of sugar—approximately between 8-100 and 6-100 of a Gram. Tests of several tubes have shown from 3-100 to 4-100 of a Gram of glucose, and a slightly smaller amount of lactose. We do not believe that this amount of sugar could prove deleterious to a diabetic patient.

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QUERY 6255.—"Paralysis or Psychic Trauma?" J. T. F., Washington, presents a rather unusual and most interesting case, in the hope that we can offer a diagnosis. The patient has consulted many eminent specialists in New York City, Rochester, (Minn.), and elsewhere, but has not been benefited in any way. The man's father and mother are alive and well. Tuberculosis or other serious systemic taint is not a factor. Our correspondent's presentation follows in its essential parts.

"Man, aged 28 years, married. Weight, 165 pounds; height, 5 feet 10 inches. In good health. Received a blow in the region of the twelfth dorsal vertebra from a sledge-hammer weighing 8 pounds, which fell on him as he was stooping, a distance of 40 feet. Subsequently walked a mile without assistance. The next day, he was paralyzed from the waist down, and had no control of bladder or bowels. The skin had been slightly bruised, but was unbroken, at the site of injury. More than 35 x-ray pictures, made at different times, disclosed no lesion of the bones. After massage, exercises, electricity, and the like, he has recovered so far that he can get around on crutches, by swinging the legs from his hips. Loss of all sensation from the lower third of the thigh down to his toes still continues.

"The man learned to drive the automobile, by having a brace, extending from the waist to toes, fastened around waist. Then, one day, while on a trip with his wife and another lady friend, they were precipitated into a river. He struck out to swim after one of the women and succeeded in rescuing her after they had been carried a half mile downstream, carrying her in his arms up the bank. He walked several feet, then fell down. The next day, he walked unaided a distance of 10 feet, and the day after he walked 100 yards. Since then, he has been slowly improving, so that now he walks quite naturally, entirely unaided. This swimming feat was performed about eleven months after the original injury was sustained.

"The patient weighed 105 pounds in December last (1915), while at present, his weight is

145 pounds. His appearance seemingly is normal, muscular development is normal, appetite is good, also his digestion, bowels are regular and under good control. He is somewhat nervous, sleeps fairly well, although not going to sleep readily; eyes seem to be normal, reacting to light and distance; skin is normal, without trophic disturbances, and is of good color. In his right arm, from shoulder to the tips of his fingers, he has a tingling sensation, and it feels as if asleep. The mobility of this arm is perfect, so also are the senses of touch, pain, temperature, and so on. Chest and abdomen seem perfectly normal. The spine is exquisitely tender from coccyx to base of skull, and the lightest touch on it causes pain; this painful area separates at the base of the skull and branches off laterally and upward. The rest of his body is entirely free from pain. The locomotive power of the legs is good, but there is absolutely no sensation, in both, from the lower third of the thigh to his toes. When standing with feet together and eyes closed, he sways sideways and backward, but does not fall. All reflexes apparently are normal, the knee-jerk possibly being slightly exaggerated.

"The patient has to get up four or five times in the night, to urinate, but voids only a little. He also urinates many times during the day; however, the 24-hour output is normal, while chemical tests reveal nothing pathological. If he neglects to urinate just as soon as desire comes, the sphincters will refuse to hold. His sexual power practically is extinct; yet, erections are normal, although there is little sensation. About three or four times a week, a rush of blood comes up his throat, when he spits out about a small cupful, regardless of circumstances—time of day, position, occupation. There is neither pain, soreness nor any induration in the costal arch. The lungs are good, and he does not cough. This blood obviously is from his stomach, for it is mixed with food and has the appearance of new venous hemorrhage.

"Sometimes, when carrying things, his fingers will relax suddenly and let go; however, he can immediately pick the article up and hold on to it. His memory is getting bad; occasionally he loses a whole day this way and cannot remember a thing he has done during that time. On bending backward, he experiences, in left groin, a sensation like that of the "funnybone" being struck, then the pain becomes severe in small of back. This subsides as soon as the upright position is resumed. He can bend forward and nearly touch the floor with his fingers, but will fall forward before he can touch the floor. He feels little pain in thus bending forward.

"The patient has had various electrical and many other kinds of treatments. He now is having cold douching to the spine. Previously to this, he has had alternation of hot and cold to the spine. None of these seem to help his condition in the least."

The Query-Editor and his colleagues have very carefully considered the facts presented about this "paralytic who is not paralyzed." Somewhat similar cases have been reported in literature, and among them are several of socalled railroad-spine. There is, of course, nothing surprising in the fact that the patient in question walked home without assistance after the accident and that he was paralyzed the next day. Since the x-ray examination has shown that no bones were broken in the spinal column, symptoms of fracture (loss of function) could not then have been present. The paralysis was a pressure-paralysis, due to swelling or, more probably, to effusion in consequence of the concussion and several hours were required for this to form. The loss of all sensation, from the lower third of the thigh down to the toes, easily may have existed at first. But its persistence is contradicted by the ability of the patient to walk.

One paragraph of your letter requires a series of diagrams before a mere doctor can understand it. He must imagine a man wearing a brace extending from waist to toes. This was applied, presumably, in order to prevent the swinging of the man's legs from the hips while he walked on crutches; and it must be assumed that this brace was stiff, for nothing is said about its being jointed at the knees. The present writer imagines, however, that it must have been so jointed. If that is correct, how, in the name of all that is reasonable, could this poor paralyzed person strike out and swim after one of the two ladies who, with him, had been precipitated into the river. This hardly is conceivable, since we must assume that all of a sudden the paralysis yielded and that he was able to kick loose from the brace—like the individuals at a spiritualistic seance, who free themselves, in the dark, of all the cords and things with which they are tied.

Anyway, the point here is, that the man could swim. Then he carried a heavy load up the bank and walked several feet beyond. What next? All of a sudden he remembers that he is paralyzed—and he drops to the ground. But, the next day, the memory of that swim and the walking-feat arouses

his ambition: he walks, unaided, about ten feet. Still, the underlying anxiety-inhibition prevents; the mental impression of the paralysis is stronger than that of the swimming and walking. In consequence, further walking is inhibited. The same explanation may apply to his experience the following day, when he walked a hundred yards. After this, the mental impression of the actual walking accomplished became stronger day by day, and in the same degree it overpowered the anxiety-inhibition of the paralysis-idea. Consequently, in the same degree his ability of locomotion gradually was restored.

We take it that the "tingling sensation" in the right arm, of which the patient complains, is a remnant of the paralysis-idea. We note that motion, with sense of touch, of pain, also of temperature, are perfect; hence, we must believe that the tingling is a purely mental manifestation.

Now comes one great contradiction. "Motor power of legs good, but absolutely no sensation from the lower third of the thigh to his toes in either foot." That is an absolute impossibility. If there were no sensation in the feet and legs, there could be no motor power.

The slight hemoptysis appears to the present writer to be coincidental, moreover, the blood may just as well originate in nose or pharynx, being swallowed, then raised. This point hardly needs discussion.

The fact that this man can carry things, but that occasionally his fingers relax suddenly and drop the objects again is explained by the persistence of the paralysis-idea. It is a phase of anxiety-inhibition, which becomes active whenever the man happens to remember that he was paralyzed. Also, there is present, subconsciously, the question as to whether he is still paralyzed or not, and the unconsciously felt inability to overcome his fear of lasting injury. (This may not be perfectly clear, as often attempts to explain psychic processes are not.)

The sensation in the groin and the pain in the small of the back, or upon bending backward, also a pain on bending laterally, suggest a local injury in which one of the intervertebral cartilages may be dislocated and impinging upon the root of a nerve. One can readily imagine such a thing to happen by way of reaction to the blow such as the man experienced at first. The tendency was, of course, to straighten up suddenly from the stooping position. This straightening up possibly was jerky and may have thrown the different portions of the spinal column out of alinement, thus permitting one or other of the cartilages to slip either forward or backward.

Naturally, it would be very difficult to determine this fact in the x-ray pictures. It does not seem to be an unreasonable explanation, though.

The diagnosis of this case is, that possibly there is present a degree of effusion that still persists although slowly growing less; then the impingement of a displaced cartilage. The major diagnosis is that of "psychic" trauma.

The treatment is local as well as mental, the latter consisting partly in reeducation and partly in suggestion (*not* hypnotic).

For the local treatment, it might be well to apply a series of small fly-blisters along the entire course of the spinal column, starting at the occiput. (A portion of the hair would have to be shaved off, of course.) We would advise this, because of the painful sensation along the spine, which bifurcates in the region of the occiput and passes to either side. Of course, the blisters must be treated in the ordinary manner.

Before the reeducation can begin, the patient must be shown the inconsistency of the history as remembered. You must explain to him what is meant by anxiety-inhibition, and also how the paralysis-idea can interfere periodically with his free motion. You must show him that the paralysis can no longer, possibly, have existed when he swam in the river and walked up the bank. He must know also that motion is incompatible with absence of sensation. Since he has motion, the consciousness of sensation may be dormant, but the sensation itself certainly is present.

You should, at the sam time, explain to this man why and how a psychic trauma may arise. Tell him that this is not malingering and that there is no pretense in it. Prove to the man that he requires readjustment of his mental attitude in regard to the extent of injury and its consequences. Unless the patient learns to reason it out fully, it will be impossible to begin with his reeducation; but, we believe that he will recover the full command of his locomotor apparatus, unless that suggested displaced cartilage really is a factor.

We shall be pleased to hear of any further developments in this case, as it interests us greatly.

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QUERY 6256.—"Dementia Præcox." W. T., California, asked us to venture a diagnosis

of the case of a young woman, and outline treatment; the patient's history being as follows: "At the age of about twelve years, she had a 'nervous chill,' following an attack of grip. She 'shook all over,' but got better after being warmed up. After that, she had blue and gloomy spells. She thought that she was going to die, imagined that she had swallowed glass, that something was wrong with her heart, or that all the streaks of light were Jesus coming with the angels to take her away. This was three years ago. She always is worse in the winter. Now she labors under the belief that she killed a certain man who was murdered when she was yet a young child, and when anyone dies, she thinks that in some mysterious way she was the cause of it. She is quieted by being assured that her belief is morbid. That word suits her. When she thinks all kinds of things and is told that they are 'morbid' imaginings, she seems not to worry so much.

"Then, also, she will ask the same question over and over again and tries to tangle her mother in every way possible. She talks to no one else on the subjects named. She goes to parties and is kept with other girls as much as possible for she does not seem to think of things while with them.

"She is, and has been, receiving a nerve tonic. Dancing and all kinds of outdoor sports have been advised, and that she be kept in the open air as much as possible. She was a very bright child until this trouble came on. Strangers would not know that there is anything the matter. She walks stooped and is pale, but is not very thin. She eats and sleeps better since taking the tonic. She always has been terribly constipated."

Our reply was as follows: Frankly, doctor, it is absolutely impossible for us to venture in this case a rational diagnosis, much less therapeutic suggestions, without having a much clearer idea of the woman's general physical condition. You must bear in mind, though, that this girl was one of the brightest members of the family until about her twelfth year. It is absolutely essential that you discover what happened at that particular time. Then, also, a very thorough examination of the pelvic viscera should be made. The whole train of psychic symptoms might disappear by performing clitoridectomy and dilating the vaginal and anal sphincters. The cervix uteri also should be subjected to an examination, and, if a pinhole os exists, it should receive attention.

Furthermore, you have not told us at what age she first menstruated, nor anything about her habits. Look into this matter carefully.

Autotoxemia, necessarily the result of constipation, must be corrected, of course. You must bear in mind, however, that in these cases internal medication is absolutely useless unless the basal pathological condition is ascertained and, if possible, corrected. It is quite evident that, serious as the patient's mental condition is, it is not as yet to be regarded as irremediable. If you will give us further clinical facts, we shall be pleased to comment further. To this, we received the following reply, giving further information:

"Last winter the young woman went coasting and in some way struck the bottom of her spine. The girls brought her home, because it hurt her to walk. She complained of it hurting her for about six months. No other known accident occurred to her, except a fall, when she was about two years old, when she climbed up on a high chair on a porch and fell from it down 5 steps on to a brick walk, striking her forehead. There is a place in the middle of her forehead where the skin seems to have grown fast. It looks like a dimple.

With the exception of being constipated, the girl has been unusually well, aside of this nervous trouble. She would not go to sleep on account of her imaginings, and sometimes would sit up in bed and think she saw a hole in the wall. She was always afraid at night and wanted to be held tight. She menstruated in the beginning of her fourteenth year. The flow is scant and lasts about four days. There is no pain. She has not been irregular till lately. Now the periods are further apart, five weeks the last time, and five have passed this time and she is not sick yet. She is always worse just before her catamenia. When this trouble first came on, she would sleep all curled up and hold her hands turned in, in an awkward position. She does not do that any more.

"Her people try as much as possible to keep her from hearing about the death or injury of anyone, because she thinks that, in some way, she is responsible. Her mother asked her to crack walnuts with a hammer, and she would not do it, as she was afraid something might make her hit the mother with it. She continues to think that she has been associated with every murder she hears about. She thinks she might be the cause of her mother's death in some mysterious way, by some backward step of hers or by thinking things in different ways. When off the subject of murder, she is like the rest of us; on it,

she loses all and gets tangled. Once in a while she will say, 'I wish I could get sick and die. There is nothing in life for me when I cannot quit thinking of these terrible things. But, are they all morbid?' She is told, over and over again, that they are, and for the time she believes; then she becomes afraid again that her belief is real.

"The girl, now seventeen, weighs about 110 pounds and is in good physical condition. Her complexion is sallow; has no color. Sunlight and air seem to help her. She would be of a good figure if she would straighten up, but her spine seems stiff and she walks like a grandmother, old and bent. She wants, however, to look better than anyone living. Once in a while she has a severe headache. Likes to read when the books are not exciting. She dances a little; sings a little; plays a little; works a little; visits with the girls and runs around after things at the stores. Sometimes she will forget what she was sent for and must call up to ask her mother. That is because she is 'thinking things,' as she calls it."

With these further facts before us, we think there is little doubt that this girl is a victim of pronounced dementia præcox. As you will appreciate, phases manifested by this trouble are so varied and the treatment called for depends so greatly upon the individual case that it is almost impossible to outline a treatment for this particular girl, even if it were practicable for such treatment to be carried out at home, which we seriously doubt. Our strong recommendation is that this patient be sent to a good institution the express object of which is, to care for just such patients until cured.

We understand fully the seriousness of the advice we are giving, but we understand also the gravity of the situation which we believe warrants this advice. Indeed, we will go a little further and say that, in our opinion, the family runs a risk every day the girl is at large, since there is no telling an hour in advance what these dementia-patients will do. It is for you to determine how much of this is to be imparted to the family; but, we repeat, it is our earnest advice that this young patient be subjected, with the least possible delay, to control and treatment in a proper institution.

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QUERY 6257.—"Hypodermic Medication." H. A., Illinois, asks: "Is it advisable in, say, an acute attack of influenza, where the patient has pain all over, some fever, and is restless and nervous, to give a hypodermic injection? Suppose the patient lives miles away and there are bad roads to traverse, would you advise such procedure? Remember, I said, during fever. What effect would pilocarpine, when injected hypodermically, have in high fever? Would it be prudent to use it?"

Whenever immediate, quick action of any remedy is desired, its hypodermic administration not only is permissible, but it is advisable; in fact, very often we may thus secure the desired therapeutic effects of potent remedies, while preventing gastric irritation or other undesirable conditions. Of late, intravenous medication has been ardently advocated for more general application, and the hypodermic syringe is now being used more extensively than has been the case. Only a few years ago, the moment a doctor produced his syringe, the patient immediately jumped at the conclusion that he was receiving morphine; which, indeed, was the chief use to which it was put, except, also, for administering rapidly acting cardiac stimulants in emergencies. Today, hypodermic medication is employed on a much wider scope, and it would be perfectly permissible to give many drugs hypodermically, just as well as by mouth, during the stage of hyperpyrexia.

The mere fact that a patient lives a long distance away in no way militates against giving any potent drug hypodermically, since its action becomes apparent within a very few minutes, as a rule, and the physician then can maintain the effect by providing for the frequent administration of small doses of the same drug by mouth.

We should not hesitate to give pilocarpine hypodermically where the action of this drug is distinctly indicated, even though the temperature were high or the patient had pneumonia. In the latter case, however, pilocarpine should be used with extreme care. Bear in mind, always, that pilocarpine nitrate not only acts on the sudoriparous glands, thus inducing free perspiration, but also very materially increases the secretions of saliva and urine and thus usefully acts as a derivative in most acute congestions, particularly pulmonary, renal, and cerebral. It is especially useful in dry, congestive coughs and as a detergent in pleurisy. In this connection, we call attention to that extremely useful little manual by Doctor Webb, entitled "Hypodermic Medication."

As substitutes for cocaine, I mostly rely on gelsemium and hyoscyamus.—Alter, *Medical Summary.*